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THE JOURNAL
of the
MISSOURI
STATE MEDICAL ASSOCIATION

Vol. 47 **JANUARY, 1950** **No. 1**

Scientific Articles

The Regulation of the Volume and Composition of Body Fluids

Epigastric Pain

Bilateral Cortical Necrosis of the Kidneys

Editorials

The Journal

Advances in 1949

Federal Withholding and Old Age

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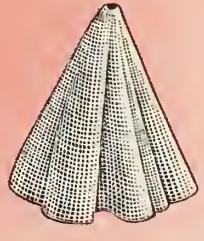
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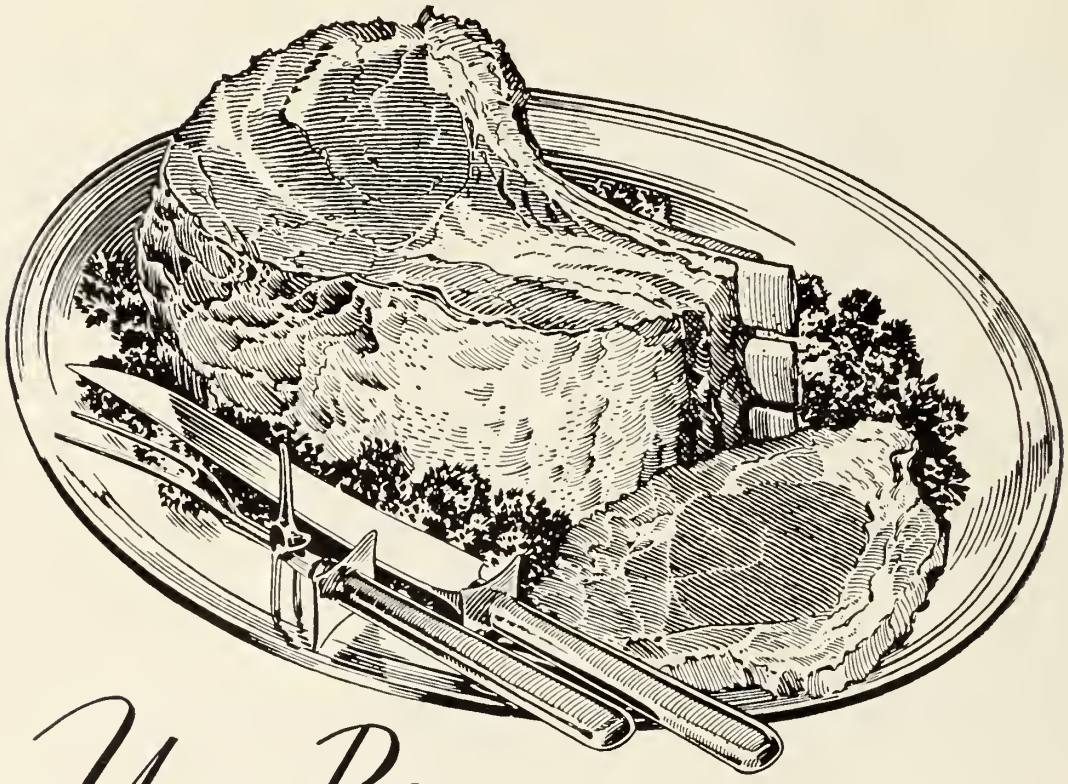
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Volume 47 JANUARY, 1950 Number 1

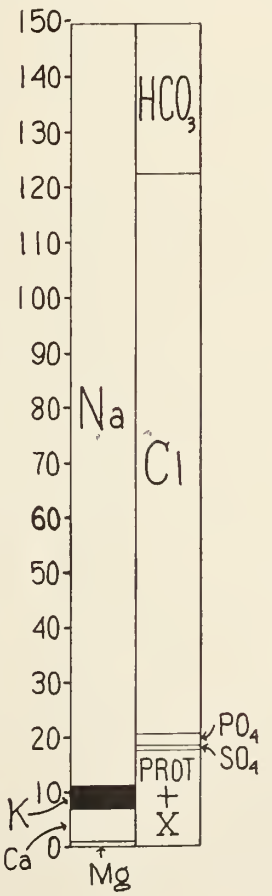
Scientific Articles

THE REGULATION OF THE VOLUME AND COMPOSITION OF BODY FLUIDS

JOHN P. PETERS, M.D.
NEW HAVEN, CONNECTICUT

THE PATTERN of electrolytes of normal human serum is illustrated in figure 1, together with a tabulation of the variability of the various components. In this figure the concentration of each component is represented in terms of combining equivalents, milliequivalents per liter, to permit the estimation of the balance of cations and anions, the acid-base balance. It is at once apparent that more than 90 per cent of the cation column is composed of sodium and that more than 90 per cent of the sodium salts consist of bicarbonate and chloride. It has been established that the membranes of cells in the body are, to all intents and purposes, impervious to all cations and most anions. By this I do not mean that these anions can not enter and leave cells. Since materials can gain access to and escape from cells only by traversing cellular membrane, provision must be made for such passage. Such transfers, however, do not seem to be effected by simple diffusion but by chemical reactions that require the expenditure of energy and which are linked with metabolic processes which they serve. It is this arrangement that makes cellular differentiation possible, that permits potassium and phosphate to be segregated in cells, while sodium and chloride predominate in the extracellular fluid, of which serum is a part.

On the other hand, all membranes in the body appear to be freely permeable to water. It follows that the osmotic pressure in all fluids of the body, cellular and extracellular, must be uniform; that is, the concentration of chemically active components in these fluids must be identical. It follows further that changes in the concentration of these chemically active components that can not cross cellular membranes will cause exchange of water between cells and extracellular fluid. Chief among these components in the extracellular fluid are electrolytes and among these sodium salts are overwhelmingly predominant. These salts, then, play the major role in the control of the distribution of water within the body. If the concentration of sodium in the extracellular fluid (I will say serum because this is the part of the extracellular fluid that is generally accessible for analysis) rises, water will be withdrawn from the cells, which consequently will shrink. If the concentration of sodium in the serum falls, the cells will take up water and swell. Under most conditions these reactions serve a useful purpose: they reduce the magnitude of disturbances of



Na	=	138.0 ± 3.4
K	=	4.1 ± 0.3
Ca	=	5.3 ± 0.3
Mg	=	1.6 ± 0.7
Total Base	=	149.0
HCO_3^-	=	26.5 ± 1.4
Cl^-	=	102.2 ± 2.2
Inorg. P	=	2.0 ± 0.5
SO_4	=	1.0
Protein + undetermined acid	=	17.3
Total Anions	=	149.0

Fig. 1.

Professor of Internal Medicine, Yale University School of Medicine, New Haven, Conn.

John Auer Lecture delivered at St. Louis, October 28, 1949.

the volume and composition of the extracellular fluid by making the cells participate. At the same time, changes in the concentration of cellular contents in response to osmotic influences presumably impair the efficiency of cellular metabolic processes. They also appear to provoke reactions in the kidneys and other organs that tend to rectify the disturbances of the distribution of fluid.

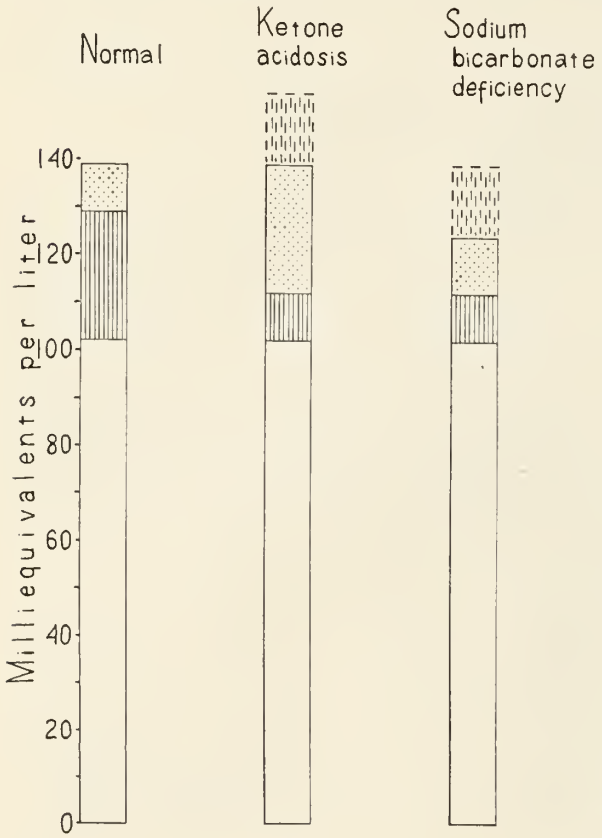


Fig. 2.

Changes in the concentration of potassium, calcium or magnesium would have a similar effect; but changes of these ions large enough to affect osmotic pressure appreciably are not tolerated. A rise or fall of only 2 mEq. in the concentration of potassium, for example, provokes disturbances of skeletal and heart muscle. Changes in the osmotic pressure of the cellular contents would cause transfers of water. There is reason to believe that such changes accompany variations in the activity of cells. These are, however, seldom generalized and do not, therefore, cause large transfers of water. Moreover, none of these cellular reactions nor changes in the concentration of ions other than those of the sodium salts in the extracellular fluid appear to be linked with the supply and distribution of water. The maintenance of the volume and osmotic pressure and, thereby, the distribution of the fluids of the body is the preeminent function of sodium. It is impossible to consider the metabolism of water apart from that of sodium.

For the maintenance of the acid-base equilibrium, the relative proportions of bicarbonate and chloride combined with sodium are highly important. For the maintenance of osmotic equilibrium and water exchange, the chief present concern, however, they are significant only insofar as sodium sometimes may be forced to concede to the exigencies of acid-base equilibrium. So far as osmotic control is concerned, it is the total concentration of sodium salts that counts. Despite this fact and the increasing importance that has come to be attached to the state of hydration of patients, measurement of serum sodium has not been employed as a clinical procedure in the past because it has been so difficult and time consuming. If knowledge of serum sodium is desired, the need is urgent. The usual chemical methods, however, take at least twenty-four hours. The information they yield has only retrospective value; it can not serve as a guide to treatment but only as a check on the accuracy of earlier inferences.

With the aid of the flame photometer it is now possible to measure the concentrations of both sodium and potassium with accuracy and expedition; but the instrument is not as yet widely employed. In its absence sodium must be estimated by inference from chloride plus bicarbonate. In a normal person under standard conditions this is an eminently satisfactory procedure. As one can see from figure 1, the bicarbonate plus chloride make up almost the whole of the sodium salts, and the difference between sodium on the one hand and bicarbonate plus chloride on the other varies within narrow limits. This difference may be termed, for convenience, "undetermined acids." It is composed, as the figure shows, of organic acid and a variable fraction of protein. In physiologic disturbed states and in a large proportion of disease conditions, sodium can not be estimated from bicarbonate plus chloride because the load of undetermined acids may be increased.

The most classical example of such a condition is diabetic acidosis, in which β-hydroxybutyric and acetoacetic acids accumulate. The pattern of the serum in this condition is illustrated in the center of figure 2, contrasted with that of average normal serum on the left. In this and subsequent figures only the concentrations of sodium, chloride and bicarbonate are shown, because these alone are relevant to the subject of this discourse. The total height of each column represents sodium, the open area chloride, the vertically lined area bicarbonate, and the stippled area undetermined acids. For the moment only the solidly outlined portions of the columns are significant. In the normal serum on the left undetermined acid is a relatively small fraction of the whole. In diabetic acidosis it has increased greatly at the expense of bicarbonate, which has been displaced. Although sodium remains normal, the sum of sodium plus bicarbonate is reduced. In this case, knowledge of the condition would obviate a gross inferential error, but the

problem is not always so simple. Another type of acidosis is illustrated on the right, one in which bicarbonate is diminished, not because of displacement by undetermined acid, but because sodium has been lost. The sum of sodium plus bicarbonate is the same in this condition as it is in diabetic acidoses, but the therapeutic implications of the two conditions are altogether different. Administration of bicarbonate to replace the bicarbonate deficiency in the diabetic acidosis is not indicated because there is no deficiency of sodium. Such treatment will, as the dotted extensions to the columns show, produce an additional disorder, sodium excess. The proper treatment of the condition is to facilitate the utilization and excretion of the abnormal acids which have displaced bicarbonate. In diabetes this can be accomplished by giving insulin, carbohydrate and adequate fluids. In other states, when other acids accumulate in the blood, there may be no such simple solution; but the creation of sodium excess to correct bicarbonate deficiency is not a satisfactory escape from the dilemma. The condition on the right, on the other hand, constitutes the

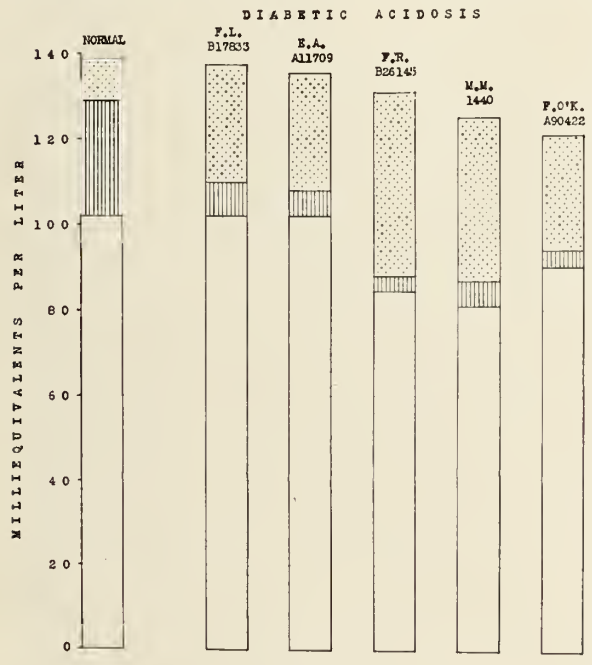


Fig. 3.

clearest indication for sodium bicarbonate, because there is a deficiency of both sodium and bicarbonate ions. As the dotted extension shows, replacement of sodium with the bicarbonate salt restores the pattern of the serum to normal. Attempts to predict serum sodium from chloride alone, which is the practice in many clinics, are even more misleading.

The illustrations in this figure are, of course, idealized. The distortions of the serum actually encountered in disease are seldom so simple. Figure 3 shows the patterns in the sera of a group of patients at the time of admission to the hospital with diabetic acidosis. Normal serum is again shown on the left. Although there is an excess of undetermined acids and a deficiency of bicarbonate in every case, beyond this all consistency ends. Sodium varies from normal to extreme deficiency; chloride is often reduced. These variations can be attributed to the relative intensity of various concomitant disorders; the degree of hyperglycemia and ketosis, diuresis, vomiting and other dehydrat-

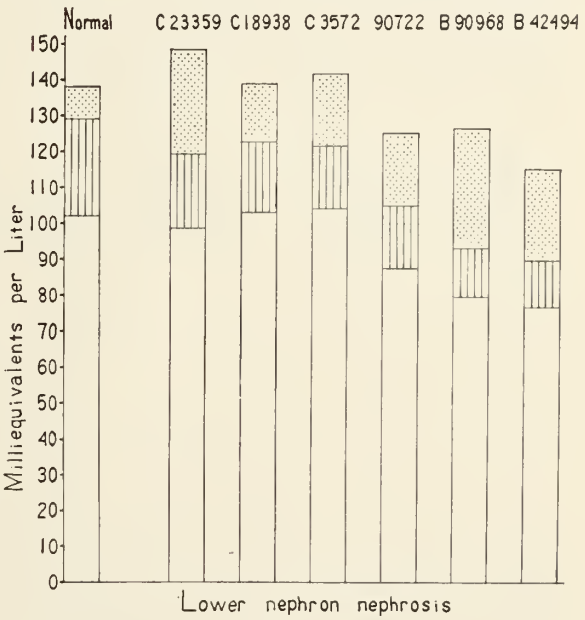


Fig. 4.

ing processes, and the quantity of food and fluids and the nature of the treatment the patients have received. For the direction of treatment in this urgent condition the most complete and precise information is desirable. Not only sugar and bicarbonate, but also sodium and chloride, are relevant data.

Figure 4 illustrates in a similar manner the patterns of electrolytes in the sera of a group of patients with anuria. In this condition precise correction of these patterns is particularly necessary because these patients lack the benefit of the kidneys upon which automatic adjustment depends. Emphasis has been placed on the acidosis in this condition. Administration of sodium bicarbonate has been advocated generally and practised widely. There is in every case a variable, but definite, reduction of bicarbonate which is accompanied in every instance by an increase of undetermined acid. In the first three cases, as one can see, there is no deficit of sodium. In fact, in the first, sodium is abnormally high. Administration of sodium bicarbonate to these patients would be distinctly contraindicated. In the last three cases sodium is reduced; but by reason of a chloride deficiency. What is required by these patients is not sodium bicarbonate, but sodium chloride. From the standpoint of

therapy the sum of bicarbonate plus undetermined acid may be regarded as bicarbonate, or potential bicarbonate, since the sodium combined with the undetermined acids will become bicarbonate just as soon as the undetermined acids are eliminated. As I said before, it may not be possible in some conditions, of which anuria is an example, to effect the elimination of the undetermined acids, but further distortion of the pattern of the serum by production of a sodium excess is justified only if the bicarbonate becomes so depleted as to cause respiratory embarrassment. This is further illustrated in figure 5 which shows the electrolyte patterns of the serum of a patient during the course

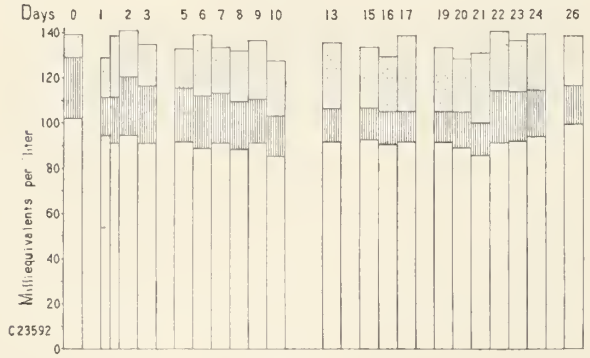


Fig. 5.

of recovery from lower nephron nephrosis. Again normal serum is shown on the left. Although bicarbonate is low throughout, on only two or three occasions is there a clinically important deficiency of sodium. Conditions in which, for similar reasons, sodium cannot be predicted from bicarbonate plus chloride could be multiplied indefinitely. The examples which have been cited should, however, be enough to convince one that measurement of serum sodium can no longer be omitted from the list of accepted clinical procedures. For the treatment of such urgent conditions as diabetic acidosis, anuria and profound gastrointestinal disorders, it is of inestimable value to be able to learn within the space of an hour the concentrations in the serum of sodium, potassium, chloride and bicarbonate.

Deficiencies of serum sodium are among the commonest metabolic disorders encountered in clinical medicine. Undoubtedly a large proportion escape detection. The reasons for their frequency are several. (1) Sodium is an essential commodity which, like other elements, must be derived from the environment. It is not a natural constituent of most vegetable foods and occurs in relatively low concentration in meats and other animal foods. For an adequate supply of the element reliance is placed largely on sodium chloride added to the food, either in the course of preparation or at the table. When patients are given nutritive liquids or limited diets, care is not always taken to assure an adequate intake of salt. (2) Both sweat and gastrointestinal contents contain sodium. In their activities the sweat glands are only slightly, the alimentary secretory organs not at all, mindful of the need for or supply of sodium in the body. Profuse sweating, vomiting or diarrhea withdraws sodium salts from the body. Frequently these losses are promoted by the unnecessary use of lavage with the aid of various tubes and suction devices by the physician or surgeon. (3) In certain types of disorders the kidneys lose their capacity to protect the salt supplies of the body, which they usually do with the greatest precision. Failure of the kidney tubules to reabsorb salt efficiently is one of the characteristics of renal insufficiency, including the type of renal insufficiency in lower nephron nephrosis. In the presence of this defect sodium chloride and bicarbonate continue to appear in the urine when their concentrations in the serum have fallen far below normal. In Addison's disease, also, sodium salts are wasted through the kidneys. Two other conditions are recognized in which the power of the kidneys to conserve sodium salts is compromised: certain types of intracranial lesions and advanced pulmonary disease, especially tuberculosis. This last condition, which has been named pulmonary salt wasting, is of considerable importance since it occurs in a group of patients who may be suspected of Addison's disease. There is not time to discuss this bizarre disorder to which much attention has been devoted recently, except to say that it can not be distinguished from the similar disorder of Addison's disease by any of the simple and rapid tests that have been proposed for the diagnosis of the latter. (4) Finally, fear has been engendered in both the lay public and the medical profession that administration of salt to sick persons is likely to precipitate heart failure.

Sodium deficiency has been defined thus far only in terms of the concentration of sodium salts in the serum and extracellular fluid because it is this concentration that controls the load of water in the cells and the responses of the kidneys. The actual amounts of water and salt in the body are a matter of little interest to these organs. They display no concern about the edema of a thrombophlebitic leg so long as it keeps its place. Edema may be uncomfortable, unsightly and even embarrassing. Nevertheless, it is tolerated by the kidneys so long as it is not brought to their attention by some attendant disorder of the circulation or the composition of the blood. Changes in the concentration of sodium in the serum have their own evil consequences irrespective of the total quantities in the body, presumably because they determine the state of hydration of the cells. Reduction of the concentration of sodium in the serum causes the cells of the body to swell, becoming water-logged. When this occurs circulation and renal function fail. Extreme deficits may cause true shock. Although concentration of sodium is important on its own merits, the total quantity of sodium in the body can not be neglected, especially in the direction of therapy. The actual amount of sodium in the extracellular fluid is the

product of concentration and volume. Of these two functions only concentration can be measured with accuracy; volume must be estimated by inference. Even if methods for the measurement of the volume of serum and extracellular fluid were accurate and reliable, they are not clinically practical. It is perfectly possible to have a sodium deficit, so far as concentration is concerned, with an excessive amount of sodium in the body, if there is at the same time a greater excess of water. Vice versa, a salt-depleted person may have an abnormally high concentration of sodium in the serum, provided that he is sufficiently dehydrated. It is the incidence and treatment of disturbances of both volume and concentration that I wish to stress. For illustration, I shall use gastrointestinal disorders, reminding you at the same time that profuse sweating or wastage of salt through the kidneys will have an identical effect.

There are, however, a few general considerations that I should like to illustrate diagrammatically (figure 6). In this and the subsequent diagrams, concentrations of sodium are represented by the vertical scale, volumes of fluid by the horizontal scale. The areas, then, indicate the total amounts of sodium. Granted a subject with 40 liters of fluid in his body, 30 in the intracellular and 10 in the extracellular compartment, in which the concentration of sodium is 140 mEq. per liter. To simplify the problem it will be assumed that sodium salts are univalent, completely ionized, and the only effective osmotic chemical components in the extracellular fluid. Since the cellular membranes permit the free passage of water, the osmolar concentration in the cells, whatever may produce it, must be the same. Furthermore, any change in the concentration of sodium in the extracellular fluid will necessitate an equal change in the concentration of osmotically active components in the cellular compartment; but this would be accomplished, not by transfers of components between the two compartments, nor by changes in the number of components in the cellular compartments, but by transfers of water. In the ideal model, then, so long as interest is centered on water and sodium, one may treat the system as if both compartments contain equal concentrations of sodium, but only the sodium in the extracellular compartment is subject to change. The quantity of sodium will be, in the extracellular fluid, $10 \times 140 = 1400$ mEq., in the intracellular fluid, $30 \times 140 = 4200$ mEq., giving a total of 5600 mEq. of osmotically active components in the whole body.

Let an additional 10 per cent of osmotic units, that is 560 mEq. of sodium, as sodium salts, be added to the extracellular fluid. This will increase the concentration of sodium in the extracellular fluid to $140 + 56 = 196$ mEq. per liter and will increase the osmotic pressure proportionally. This is indicated by the extensions in broken lines. Immediately water will pass from the intracellular to the extracellular fluid to equalize osmotic pressure, that is, until the osmotic pressure in the two compartments is the same. The final state of equilibrium is represented by the broken lines in the second figure. The extracellular space has been expanded by 2.7 liters at the expense of the intracellular; but the concentration of sodium in the extracellular fluid is now only 154 mEq., 14 mEq. or 10 per cent higher than it was in the beginning, and the osmolar concentration of the intracellular fluid has risen to the same degree. Although all the sodium remained in the extracellular fluid, because of the transfer of water it raised the concentration of sodium and the osmotic pressure of this fluid no more than it would have done if it had

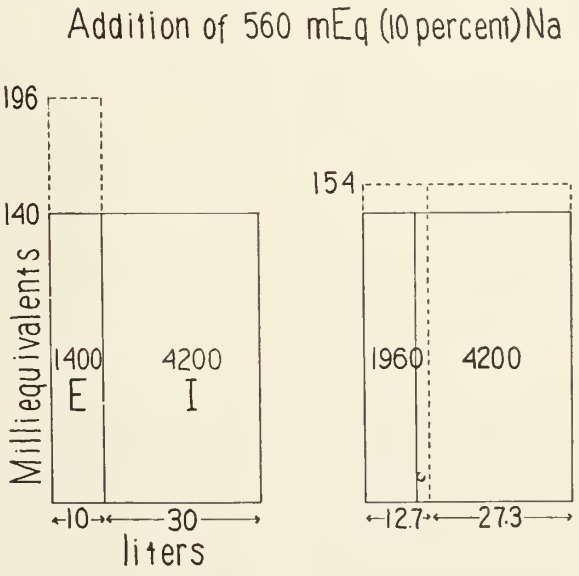


Fig. 6.

been equally distributed throughout all the fluid of the body. To increase the concentration of sodium in the body to a given extent, therefore, enough sodium must be added to increase its concentration by the required increment, not only in the extracellular fluid, but in all the fluid in the body. It is evident also that a large deficiency of sodium causes a relatively small deficit in the concentration of sodium in the serum. This is a most effective protective device. By this process changes of concentration and volume are distributed equally over both compartments without the sacrifice of the essential and highly differentiated cellular component.

It should be unnecesary to point out that if an equal amount of sodium, one tenth of the total, or 560 mEq., is withdrawn from the extracellular fluid, osmotic adjustment will be made by expansion of cells at the expense of the extracellular fluid in such a manner again that the deficiency is spread equally over both compartments (figure 7).

The proper treatment for the simple excess of sodium, illustrated in figure 8, is removal of the sodium salts. As far as concentration alone is concerned, however, adjustment could be made equally

well by the addition of water to dilute the salt. Since one tenth of the original sodium was added, addition of one tenth the original water, or 4 liters would be required. The concentration of sodium in the serum would now be perfect, 140 mEq. per liter, but there would be 4 liters of excessive water in the body. Removal of salt by itself is not a feasible process, because salt can not be excreted in the dry state; administration of water to enable the individual to excrete an excess of salt may,

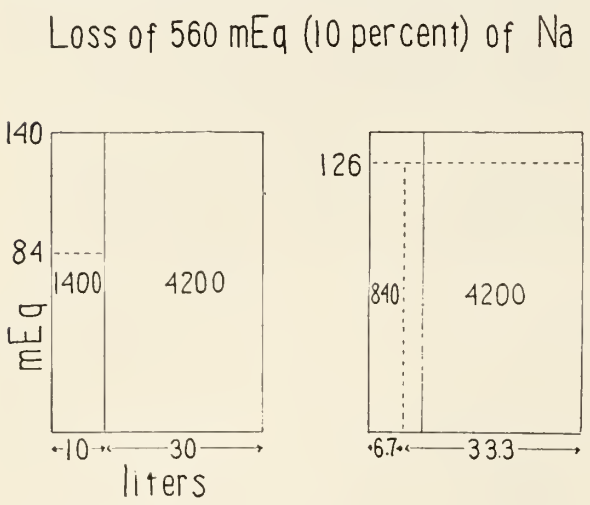
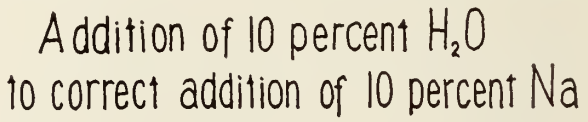


Fig. 7.

therefore, be necessary, but undue expansion of the volume of fluid in the body should be avoided.

With this preamble I shall push on to practical problems. The normal person loses daily by evaporation through skin and lungs about a liter of water without salt. (If, by reason of high environmental temperature or bodily activity, he sweats, these losses will be much larger and will carry with them salt; but this may be neglected for the moment.) The nonsweating individual, therefore, requires for replacement of inevitable losses at least one liter of water without salt. If such an individual receives no water in any form, the sodium in his serum will become concentrated, because every liter of water lost by evaporation will leave 140 mEq. of sodium to be dissolved in the water remaining in the body. This is countered at first by the excretion of salt in the urine. But after a time this ceases and the sodium of the serum rises steadily. It seems paradoxical that reabsorption of salt should increase when the concentration of sodium in the serum rises; but when there is a scarcity of water this reaction, which has been termed "the dehydration reaction," serves a most useful purpose. Every increment of salt in the urine requires for its excretion a certain amount of water. By reabsorbing salt, therefore, the kidneys are enabled to save some water. But the reaction has secondary beneficial effects. As the concentration of sodium in the extracellular fluid rises, the osmotic pressure of that fluid also rises. This causes fluid to be drawn out of the cells. The cells thereby share in the loss of water, protecting the extracellular fluid from extinction. An excessive concentration of sodium in the serum is usually *ipso facto* evidence of dehydration.

The gastrointestinal secretions, neglecting certain variations of pattern that are not germane to this discussion, are isotonic salt solutions; and all fluids introduced into the alimentary canal become isotonic during the process of absorption. If, then, a person receiving no fluids, loses by vomiting, diarrhea, fistulae or suction, gastrointestinal secretions or digestive juices, sodium salts and water will be withdrawn in equivalent quantities from the extracellular fluid. This should, of itself, reduce the volume of fluid in the body without altering the concentration of sodium in that fluid. While this isotonic fluid is withdrawn through the gut, however, the lungs and skin continue to dissipate water alone in insensible perspiration or as a hypotonic salt solution in sweat. Consequently, altogether, more water than salt is sacrificed and the sodium



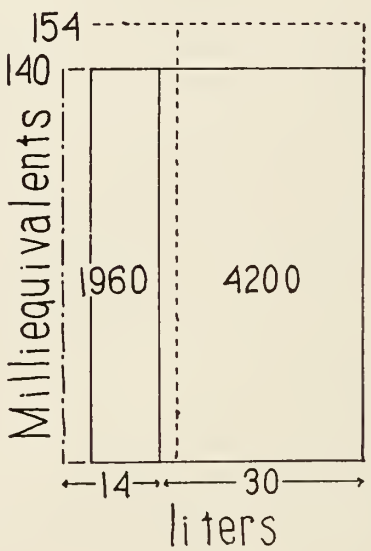


Fig. 8.

concentration of the serum rises. Losses of gastrointestinal fluids, if not replaced in any manner, cause an accelerated dehydration reaction with elevated serum sodium. Excessive sweating will have the same effect. Confronted with such a picture, the natural reaction is to give only glucose solution in order to lower the concentration of sodium in the serum. This is not, however, sufficient. Water, or its parenteral equivalent, glucose solution, may be given to dilute the fluids already in the body;

but saline must be given in addition to allow for further necessary expansion. This subject did lose salt, only he lost proportionally more water. If all the fluid lost is replaced by water, the concentration of sodium in the serum will fall below normal and the subject may develop stoker's cramps or miner's colic.

This picture of dehydration with high serum sodium is seldom encountered in patients with vomiting or diarrhea because such patients are given or take water by mouth. Into this water salt is poured by the gut and digestive glands, which are stimulated to secretion by its presence. The consequence is that more salt than water is lost from the body and the concentration of sodium in the serum falls. The proportion of salt lost depends on the quantity of water introduced, the length of time it remains in the alimentary canal and the volume that is discharged by vomiting or diarrhea or removal by tube. If lavage is practised, normal saline or slightly hypotonic saline brought to isotonicity with glucose should be used, because such a solution provokes minimal secretion. It is far better, in the face of intractable vomiting, to give no fluid at all by mouth, relying for the moment on parenteral fluids. If water alone is given by mouth, since salt is lost in excess of water in vomitus or lavage fluid, replacement by parenteral glucose solution will aggravate the disorder grievously. Even normal saline parenterally is inadequate for replacement, because it provides water and salt in equivalent proportions. Attempts to raise the concentration of sodium in the serum by means of normal saline solution will provoke edema with sodium deficiency. In this case the total amount of sodium in the body may be excessive, but its concentration in serum and extracellular fluids is below normal. This deficiency of concentration of sodium has its usual effect of impairing circulatory and renal functions, the very functions upon which the body must depend for automatic readjustment of the composition and volume of the internal environment. This is the condition in which patients with gastrointestinal obstruction or lower nephron nephrosis so often present themselves. The first indication is obviously to arrest the losses of salt by forbidding all oral foods or fluids of any kind. It then remains to restore the proper concentration of sodium and the volume of fluid in the body. To achieve this end it has been proposed that all salt be withheld and that only enough glucose solution be given daily to prevent ketosis and excessive destruction of protein. Essentially the patient is left to eliminate the excess of water in the body by the process of insensible perspiration. This will, however, dissipate only about one liter of water a day, which will have to be returned as 10 per cent glucose solution to provide the 100 gm. of glucose required to prevent ketosis and excessive protein wastage. At best this must be a tedious process. Meanwhile, until it is completed, circulatory and renal insufficiency will persist. There can be no question but that normal salt solution under such circumstances is contraindicated. Normal saline should be used only to make up the volume of fluid in the body when this is deficient. It contains only enough salt for the water in which it is given. Normal saline with glucose dissolved in it can be used to restore the concentration of sodium when the volume of water in the body is normal or reduced. In this case insensible perspiration will aid in the adjustment. But to wait on insensible perspiration when there is an excess of fluid in the body seems overcomplacent. The most logical treatment in this condition is the administration of sodium chloride with the smallest possible amount of water. Dry salt can not be used; the best substitute is hypertonic salt solution. A liter of normal saline contains only enough sodium to take care of the liter of water it adds to the body. Sodium chloride solution, 300 cc. of 3 per cent, besides providing the salt required for its own volume, contains enough in addition to raise the concentration of sodium in 11 more liters 10 milliequivalents, while 500 cc. of a 3 per cent solution will provide 10 milliequivalents for 18 extra liters. Also, 300 cc. of a 5 per cent solution will do the same for 21 extra liters. Such solutions, especially the 3 per cent, are well tolerated. Their administration, under the conditions that have been defined, does not provoke heart failure or aggravate edema. On the contrary, it is frequently followed by improvement of the circulation and diuresis.

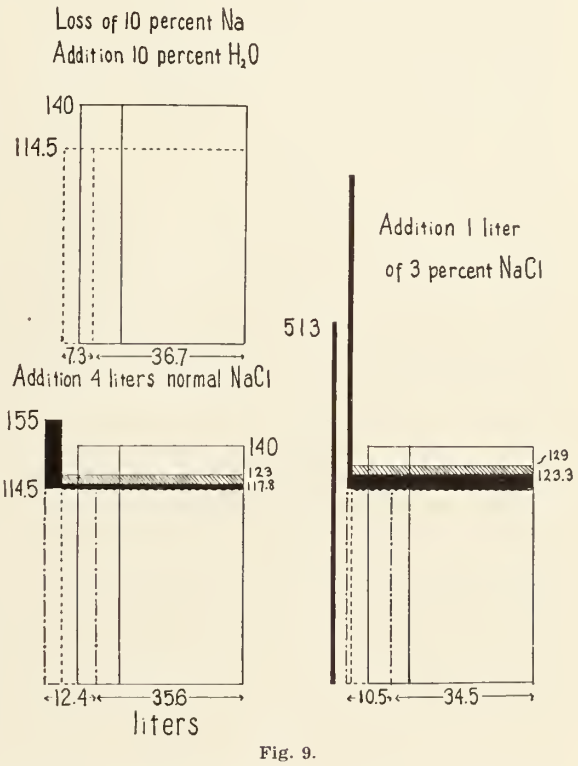


Fig. 9.

Perhaps these points can be clarified by the old lay figure (figure 9), again with 40 liters of fluid, 10 in the extracellular compartment, and a sodium

concentration of 140 mEq. per liter. This time 10 per cent of the osmolar units are withdrawn and 10 per cent of the water—i.e., 4 liters—is added. This will expand the total fluid to 44 liters, reduce the concentration of sodium to 114.5 mEq. and expand the intracellular volume to 36.7 liters. In the second figure an attempt is made to restore the concentration of sodium by the addition of 4 liters of normal saline. This is represented by the column on the left. This expands the volume an additional 4 liters. Of the 155 mEq. of sodium in each liter, 114.5 can serve no purpose except to bring the new fluid to the same concentration as that already in the body. Only the excess above this, drawn in black, is of any value to raise the concentration of sodium. The result is shown by the black horizontal layer, an increase of only 3.3 mEq. On the right is shown the result of adding 1 liter of 3 per cent sodium chloride, each liter of which contains 513 mEq. Lack of room has compelled me to draw it in two sections. Of this 513 mEq. only 114.5 is required to bring the added liter of fluid to equilibrium with the other fluid in the body. The remainder drawn in black is all available to raise concentration. The result is shown by the black horizontal layer. Sodium has increased 8.8 mEq. With one fourth as much water the concentration of sodium has been raised almost three times as much as it was by the normal saline. Of course, these are purely theoretical diagrams in which the body is treated as a self-contained space. Loss of a liter of insensible perspiration will contribute another increment of sodium; excretion of a liter of urine containing no sodium will still further remedy the situation. This would, however, still leave the subject who received normal saline with 2 liters of fluid more than he had in the beginning. The subject who received the hypertonic salt, on the other hand, would by the same processes have lost a liter of edema. The results of such losses on serum electrolytes are represented by the diagonally lined areas.

It has become increasingly evident that sodium, water and glucose are not the only objects of concern. Disturbances of the concentration of potassium, especially deficiencies of this element, are being reported with increasing frequency. The concentration of potassium in normal serum varies from 3.1 to 5.3 milliequivalents per liter (12 to 20 mg. per cent). If it falls below 2.0 or rises above 7.0 milliequivalents, definite disorders appear. The most serious of these involve the action of the heart and may be detected by means of the electrocardiograph. I shall not describe these changes now; they have been well defined in the recent literature. It has been suggested that they be used instead of chemical analyses to detect disturbances of serum potassium and as checks on the effects of therapy. Although electrocardiography may be a useful adjunct to chemical analyses for this purpose, it is not an altogether satisfactory substitute. The electrocardiographic disorders, unless they are permitted to run their whole gamut, which is obviously undesirable, are not sufficiently specific to be regarded as pathognomonic. Other symptoms and signs that have been described are even less reliable. Weakness, sometimes approaching paralysis, has been described as a symptom of both hyperkalemia and hypokalemia.

Provided that a person is receiving and absorbing food a deficiency of potassium is unlikely to develop because potassium is such a ubiquitous component of foods. The subject who is not receiving or absorbing a diet, however, is deprived of this essential element. So long as the function of the kidneys is unimpaired, these organs protect the body most effectively against depletion of sodium, but potassium they conserve with far less efficiency. In the presence of a sodium deficiency, if the kidneys are intact, sodium may be reabsorbed so completely in the tubules of the kidney that only minute traces of the element appear in the urine; a urine free from potassium, on the other hand, has never been described. Potassium exists chiefly in the cells of the body to which it gains access and from which it is discharged, not by a simple process of diffusion, but in connection with metabolic reactions. If, then, potassium leaks from the extracellular fluid into the urine, the cells do not ordinarily replace it completely. In the absence of an exogenous supply of potassium in the form of food, serum potassium does not usually fall to a serious extent because cellular tissue, especially protein, is broken down and with its destruction potassium is released. Gastrointestinal secretions, however, also contain potassium, in concentrations distinctly higher than those found in serum. This element is, therefore, sacrificed in vomitus, diarrhea, fistulae and, when lavage is practised. This constitutes another contraindication to suction and lavage. There can be no doubt but that potassium deficiency of a serious degree has been and is still occurring with great frequency on the surgical services of hospitals because of failure to recognize these fundamental facts. A special case of potassium wastage attends the use of desoxycorticosterone acetate, DOCA. This steroid specifically promotes excretion of potassium. Patients treated with desoxycorticosterone are, therefore, always in a somewhat precarious state with respect to potassium. So long as they eat and retain their food, they are protected. But, if, because of intercurrent illness or from any other cause, they fail to eat or develop vomiting or diarrhea, their serum potassiums may fall rapidly to dangerous levels.

Excesses of potassium in the serum are less to be feared. The condition in which they are most to be feared are states of extreme renal failure, especially anuria. Even when there is complete anuria, however, serum potassium soldom rises to dangerous concentrations if the composition and volume of the fluids in the body are preserved properly. It is difficult to raise the concentration of potassium in the serum of normal animals to

toxic levels with injections of potassium salts, not only because the potassium is promptly excreted by the kidneys, but also because it is absorbed by the cells. Even if the kidneys are removed, the tolerance for potassium remains quite high because of this protective activity of the cells. If a normal animal is deprived of protein, both nitrogen and potassium are excreted in rather uniform proportions as a result of the destruction of cellular protein. But if an anuric animal is subjected to the same treatment, under proper conditions, nonprotein nitrogen accumulates in the blood serum far more rapidly than potassium does. The potassium is retained in the cells. This power of the cells to take up and retain potassium constitutes an automatic protection against potassium poisoning. Of course there is a limit to this protection and it is not well to tempt nature too far by adding to the endogenous potassium when there is anuria or extreme oliguria. The patient with extreme oliguria or anuria should not receive food containing potassium, which excludes almost all natural nutritive materials. Carbohydrate should, however, be given in sufficient quantities, properly distributed, to maintain continuous carbohydrate combustion. This has a double beneficial effect. It minimizes the destruction of protein and promotes the retention of potassium by the cells, because the segregation of potassium in cells seems to be linked with utilization of carbohydrate.

This is most vividly illustrated in diabetic acidosis. At the height of this condition, when carbohydrate combustion is reduced to a minimum and renal function, owing to dehydration and circulatory collapse, is greatly impaired, potassium in the serum usually is elevated, sometimes to dangerous concentrations. When combustion of carbohydrate is restored by insulin and glucose, and renal function repaired by administration of fluid and salt, serum potassium falls rapidly, sometimes to equally dangerous concentrations. This drop is the result of three processes: excretion by the kidneys, dilution by expansion of the body fluids, and movement into the cells under the impulse of the resumption of carbohydrate combustion. If, at this time, the patient can and does take food and fluids by mouth, these will provide protective quantities of potassium. If he can not, potassium must be given. It is, however, essential to know whether potassium has fallen before administering it. It would be a fatal error to give potassium in the early stage while its concentration in the serum is still elevated. Potassium chloride or a neutral solution of potassium phosphate may be given slowly intravenously. For this purpose it is our custom to dissolve about 100 milliequivalents of potassium (7.5 gm. of potassium chloride) in 500 cc. of distilled water. This can be diluted with from 500 cc. to a liter of normal saline or glucose solution. It may be necessary to repeat this dose.

It is evident from what has been said that, although the proper sphere of action of potassium is within the cells, where it must serve specific functions, effects of either deficiency or excess become apparent only when its concentration in the serum and extracellular fluids is altered. The load of potassium in cells can be varied within wide limits without recognizable response, so long as its concentration in the serum is normal. The most striking illustration of this is the syndrome of familial periodic paralysis. During the paralytic attacks, potassium is transferred, presumably by reason of some metabolic disorder, from the extracellular fluid into the cells, causing serum potassium to fall. If extra potassium is given, it may be taken up by the cells in the same way. There is, therefore, an overload of potassium in the cells. Nevertheless, the reactions of the patient, including electrocardiographic changes, are those characteristic of potassium deficiency.

SUMMARY

This has not been an organized discussion of the metabolism of water and electrolytes. To attempt such a task in a single lecture would be absurd. By the translation of certain clinical problems into physiologic terms I have tried to point out the desirability of analyzing in more detail the disorders of fluid and electrolyte balance which patients present, and treating them with careful consideration of the particular needs of each individual. This requires that the full resources of chemistry be employed more generally and that therapy be diversified. Measurements of potassium and sodium of serum must be added to diagnostic procedures; other solutions besides normal saline and glucose must be available for therapeutic purposes. Finally, both diagnostic and therapeutic procedures must be directed on sound physiologic principles.

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EPIGASTRIC PAIN

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EPIGASTRIC DISTRESS is the most frequent type of distress which occurs in the human being. The reason is that so many different diseases affect the functional activity of the stomach. Since this is true, it is definitely worth while for every physician to have his knowledge regarding the subject well organized.

I should like to provide a classification of those disturbances which cause epigastric distress or dyspepsia. However, epigastric distress is only one of the symptoms of dyspepsia.

First, epigastric pain is due to diseases resident in the stomach *per se*, organic diseases of the stomach such as peptic ulcer, gastritis, gastric cancer,

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Presented at the 91st Annual Session of the Missouri State Medical Association, March 27-30, 1949, at Kansas City.

diaphragmatic or hiatal hernia and duodenal ulcer.

Second, epigastric distress is due to diseases in other organs which reflexly, by a nervous connection, disturb the function of the stomach. The most common is gallbladder or urinary tract disease. For example, in patients with appendicostomy, if a balloon is placed in the appendix and distended, epigastric pain will occur due to spasm of the pyloric portion of the stomach. The pain generally is followed by nausea and vomiting, but the pain comes first. Epigastric pain occurs at the onset in one third of the patients with appendicitis. Disturbances of the colon likewise reflexly interfere with the movements of the stomach and cause epigastric distress. Pyelitis, calculus in the pelvis of the kidney or in the ureter, may reflexly cause disturbances of the physiology of the stomach with epigastric distress and the other symptoms of dyspepsia. In pneumonia, particularly in children, the onset of the disease may be pain in the epigastrium with nausea and vomiting.

Third, epigastric distress may be systemic in origin. For example, when nephritis advances to the point at which uremia occurs, symptoms of dyspepsia occur.

Fourth, epigastric distress is referred to as being functional in origin. As regards the cause, two types of functional epigastric distress or dyspepsia are generally recognized. One is what I choose to call dietary dyspepsia or habit dyspepsia. The other is psychoneurotic dyspepsia or epigastric distress. The patient with dietary dyspepsia usually reports that his symptoms are due to dietary indiscretions. These patients while on a business trip eat considerable amounts of food rapidly, smoke excessively, drink alcoholic beverages and then develop what is called a "sour stomach," a feeling of pressure or fullness in the epigastrium, or sometimes actual cramps in the epigastrium; or this frequently happens during a period of stress at home. If these patients are subjected to an x-ray examination one finds nothing wrong with the stomach. If one takes a look at their stomach through the gastroscope, one finds either no organic pathologic condition or what is called a superficial gastritis characterized chiefly by reddening and perhaps some swelling of the mucosa. If these individuals take a soft bland diet for a few days and rest, the symptoms of their "sour stomach" entirely disappear. Some people have symptoms of a "sour stomach" or a dietary form of a functional dyspepsia when they eat too much on Thanksgiving Day or on Christmas Day. In such persons, overeating for only one meal will cause a "sour stomach" associated with other dyspeptic symptoms which continue for from one to five days, and then disappear spontaneously on hygienic living. Since one finds no organic disturbances in the stomach of many of these patients, the dietary type of distress or dyspepsia can be due only to some physiologic disturbance which does not make itself evident through organic changes.

Knowledge regarding the psychoneurotic type of dyspepsia has been increased materially by experience accumulated during the last war as a result of the association of the efforts of the gastroenterologist, the psychiatrist, the gastroscopist and the roentgenologist.

I should like next to summarize this knowledge. In about 80 per cent of these so-called cases of functional dyspepsia, psychoneurotic trends are found in the history. One does not have to be a psychiatrist in order to discover these psychoneurotic trends. The common ordinary practitioner can do it if he takes time to ask the right sort of questions, questions which he knows and need not be enumerated here. If one takes this 80 per cent of cases and subdivides it into definite cases of psychoneurosis, one will find that approximately 20 per cent can be diagnosed specifically as being psychoneurotic. If one goes further into the history of this group, he will find that they have had psychoneurotic and dyspeptic symptoms for a period of five years or more. If one goes further into their history, one will find that only about 25 per cent of them are relieved by food and alkalies. Contrary to the typical ulcer patient, they respond poorly to milk and cream and alkali. Now if one takes a look into the stomach of this 80 per cent, he will find evidence of gastritis in about one half of them. In the other half, evidence of gastritis will not be found. There is apparently nothing wrong with their stomach in so far as organic lesions are concerned. One cannot say that gastritis always causes epigastric dyspepsia because definite symptoms of dyspepsia or epigastric distress occurs in only about 60 per cent of patients with gastritis. The remainder have either no symptoms at all or complain of vague abdominal sensations.

So, in the psychoneurotic type of functional dyspepsia or epigastric distress, there are patients with and without gastritis. And, the evidence shows that the patients can have a tension state over a relatively long period of time with symptoms simulating, in some respects, those of peptic ulcers and without the tension state resulting in any organic lesions of the gastric mucosa.

On the other hand, there is a group of individuals who give a history of having a tension or anxiety state over a period of years and in whom gastroscopy reveals a superficial gastritis with or without erosions. Apparently the anxiety state, when present over a period of time, may lead to the development of organic changes in the stomach.

In this connection a great deal has been written about the psychosomatic etiology of peptic ulcer. But here, in these psychoneurotic persons, one deals with a group of individuals with a tension or anxiety state which has been present for a period of years, and some develop a superficial gastritis and others develop no organic lesions in their stomachs at all. On the contrary, one sees the group of peptic ulcer patients who fall under group one of this classification of dyspepsia, and in whom recurrence of their ulcer appears to be related defi-

nitely to a tension state. Therefore, it would appear that some sort of organ susceptibility determines whether a peptic ulcer, or gastritis, or only dyspeptic symptoms occur from a tension state.

Then, of course, there is a group of patients who have a tension state or who develop anxiety syndromes who do not have any epigastric distress whatsoever; instead they may develop high blood pressure or some other condition.

There is another group of diseases which causes epigastric distress simply because the diseased organ is located in the region of the epigastrium. One of these is pancreatitis. In the last twelve years the surgeons have been treating this type of patient more conservatively. As a result there has developed a group of patients who are diagnosed as having recurrent or relapsing acute or chronic panceatitis. The only way that one can diagnosis this condition with certainty is to examine a specimen of the serum for amylase or starch splitting enzyme. The pain in pancreatitis is most commonly located in the mid-epigastrium, more frequently to the left than to the right, unless the patient has a history of biliary colic or some biliary tract disorder. Then, pain in pancreatitis may be referred to the right upper quadrant.

Today, if one cannot diagnose the patient's epigastric distress as being due to peptic ulcer, gastric cancer, hiatal hernia, a gastritis or to a biliary tract disturbance, serum amylase determination is made. As a matter of fact, I have been teaching that in all patients, whether they have biliary tract disease or a peptic ulcer or a cancer, a serum amylase determination should be made when the pain is in the epigastrium. In that way one will diagnose more cases of pancreatitis. In that way more will be learned about the pain picture of this disease.

Returning to the diseases in the first classification, peptic ulcer, gastritis, gastric cancer and hiatal hernia, I should like to emphasize the importance of examining carefully all patients with epigastric distress. Epigastric distress is an early symptom of gastric cancer, particularly in patients more than 40 years of age. In order to rule out cancer, x-ray and sometimes gastroscopic examination should be employed. It is not right to place these patients on dietary management without careful study. This raises the question of the differential diagnosis between a benign and malignant ulcer. Some surgeons have taken the position that a subtotal gastric resection should be performed in all patients with a benign ulcer of the stomach because of the danger of the "benign" ulcer being malignant. If one carefully studies the literature on this subject, even that from a single large clinic, one will find that from 5 to 20 per cent of gastric ulcers are reported to be malignant after surgical excision. For example, one article will report a series of 100 specimens studied under the microscope with an incidence of 5 per cent malignancy. Another article will report a series of 125 ulcerating specimens with a malignancy incidence of 20 per cent. However, this discrepancy is to be expected with a small series of specimens because on the basis of chance a range of from 5 to 20 per cent should be expected when the average incidence is 11 per cent. I believe that this figure of 11 per cent of the ulcers of the stomach being malignant is too high because these reports come from surgery and, as all know, only the more difficult and intractable cases of gastric ulcer are funneled toward the surgeon. The carcinomatous or malignant type of ulcer is generally more intractable; it does not heal well, by "the therapeutic test of malignancy of the ulcer," and hence, the intractable ulcers tend to funnel to the surgeon and he observes a higher incidence than actually exists. A recent important paper on this subject comes from the Lahey Clinics. Jordan and Smith followed a group of patients maintained on medical management and who had responded favorably on the therapeutic test. They also studied a group of patients who had been operated on for gastric ulcer. It was found that the hospital mortality in the group of patients who had a partial gastrectomy was approximately 5 per cent. They found that the mortality from cancer of the stomach managed medically as a benign ulcer was also 5 per cent over a period of five or six years. In other words, the hospital mortality from the surgery was approximately equal to the chance of the ulcer being malignant. Further evidence of this sort is needed before this moot question can be answered. However, I should emphasize the importance of taking patients with gastric ulcers in hand and of placing them upon strict medical management and then of subjecting them to roentgenologic examination again at three weeks, then at four weeks, and then repeating the examination at short intervals, keeping in mind not to expose the patient to too much x-ray. Of course, I realize that in a small percentage (5 per cent) of these cases, the cancerous ulcer will heal; but the chance of dying from surgery is less than dying from cancer of the stomach in such instances.

I should like, in regard to the second group or the reflex causes of dyspepsia, to point out that when one cannot find an organic lesion in the stomach to account for the epigastric distress, one should make a thorough survey of the other abdominal viscera. In this connection, in patients, particularly more than 40 years of age, one should take an electrocardiogram because not infrequently cardiac pain, or pain due to coronary insufficiency, is referred to the region of the epigastrium.

Finally, if no organic lesion can be found, one is then in a position to begin to think that the patient may be affected with a gastric neurosis or a gastroneurotic functional type of dyspepsia. I do not believe that they occur as frequently as the literature would indicate, or some lecturers on this subject would indicate but, nevertheless, they do exist and, in my opinion, the diagnosis should be made by eliminating all possible organic causes for the epigastric distress.

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BILATERAL CORTICAL NECROSIS OF THE KIDNEYS

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Bilateral renal cortical necrosis is an entity characterized by a patchy or complete necrosis of the cortical substance of both kidneys. The lesion was first noted by Juhel-Renoy in 1886 and in 1939 Duff and More[1] analyzed seventy-one cases from the literature on a clinical and pathologic basis, excluding those in which no adequate pathologic description was available.

Of the seventy-one cases, forty-eight were associated with pregnancy and of these two thirds were in women more than 30 years of age. In all of the pregnancies except one, stillbirth occurred and premature delivery was frequent. Nephritis during pregnancy, surgical shock and postpartum infection of the uterus were rare in this series. In six cases infection developed but the anuria was present before the infection was detected.

In the twenty-three cases of cortical necrosis not associated with pregnancy, males predominated fifteen to eight. Their ages ranged from 10 to 50 years. Cortical necrosis appeared as an isolated entity in these cases and etiology was not apparent.

Other cases were associated with scarlet fever, diphtheria, tonsillitis, pneumonia, tuberculosis and dysentery. Possible toxic substances such as alcohol, almond extract, cobra venom, local anesthetic and thyroid extract were implicated in other cases.

Cases have been reported following severe burns and extensive hemorrhage associated with shock,[2] and in conjunction with periarteritis nodosa.[3]

Sheldon and Hertig[4] reported two cases in which necrotic changes appeared in the anterior lobe of the pituitary.

Tomlinson[5] reported cortical necrosis of the kidneys associated with necrosis of the pituitary in obstetric shock.

Doniach and Wacker[6] reported the association of combined anterior pituitary necrosis and bilateral cortical necrosis of the kidneys following accidental concealed hemorrhage.

This association with anterior pituitary necrosis is of interest since Byrom[1] has found that relatively small doses of pitressin in rats produces poorly defined areas of pallor in the kidneys with degenerative changes in the tubular epithelium in these areas. Large doses, however, produce lesions that stimulate bilateral cortical necrosis in man. In rats necrosis of the renal and gastric arteries was observed along with focal necrosis of the liver. These lesions were attributed to intense vasoconstriction.

Diethylene glycol, in sufficient doses, can cause a symmetrical necrosis of the renal cortex preceded by a marked hydropic degeneration of the renal tubular epithelium and of the central portions of the liver lobules. This necrosis is accompanied by necrosis of the small renal arteries. In experimental animals, however, diethylene glycol produces changes described as severe tubular nephrosis without vascular changes. Duff and More feel that, in view of this, symmetrical necrosis of the renal cortex does not develop without involvement of small cortical arteries.

The lesions of cortical necrosis frequently have been associated with symptoms of preeclampsia and eclampsia. Necrosis of the liver, both central and peripheral, occasionally have been described as ocurring with cortical necrosis. Other authors have associated hemorrhagic ulceration of the large intestine, acute pancreatitis, multiple necrotic areas in the spleen, small areas of adrenal necrosis and petechial hemorrhages in the brain with the kidney changes.

PATHOLOGY

Grossly, the kidneys are slightly enlarged and swollen with capsules that strip easily. The outer surface shows a yellowish mottling. On the cut surface, yellowish opaque areas of necrosis are seen in the cortex which may coalesce to include its entirety. A thin subcapsular zone of cortex and an inner zone of cortex and adjacent medulla may be congested and reddened, outlining the yellowish necrotic area.

Microscopically, the general structures of the cortex are discernable though the individual elements show degeneration. The intralobular arteries and the arterioles show thrombotic occlusions of their lumens and necrosis of the walls.[7]

Almost all authors agree that the necrosis of the renal parenchyma is ischemic in origin. The main question has been whether the ischemia is organic or functional. The majority of writers seem to favor the idea that necrosis of the vascular wall is the primary event, leading to the vascular thrombosis. Zanzig and Byrom have both suggested that the primary arterial necrosis is due entirely to vascular spasm.[1] Recently Trueta[7] has described a vascular shunt whereby the blood by-passes the cortex and Anderson suggests that this may be the correct explanation.

Following are two cases of bilateral renal cortical necrosis encountered in St. John's Hospital.

CASE REPORTS

Case 1. A 26 year old housewife was admitted on December 7, 1946. She had developed a respiratory infection two days prior to entry and had become severely dyspneic. The past history was normal except for hay fever. Regional and family histories contained nothing unusual.

Significant physical findings consisted of temperature 101.4 F., blood pressure 114/85 and impaired resonance with rales scattered over both lung fields. The admission diagnosis was virus pneumonia.

The initial blood count showed 9,200 white blood cells with slight increase in the segmented forms. Subsequently she developed a leukocytosis.

Sulfadiazine was begun on admission and stopped on the second day when it was apparent that the patient was becoming anuric. She became worse gradually. On December 11, 1946, the kidney pelves were washed out in an attempt to remove any mechanical blockage. Urethral catheters were left in place. She became comatose on the following day. She continued to grow worse, remaining anuric, and died in uremia on December 15, 1946. Autopsy revealed the typical lesions of bilateral renal cortical necrosis.

Case 2. A 29 year old housewife, multipara, was admitted to another hospital on September 12, 1948, and delivered a living male child on September 19 after several attempts at induction of labor. On the tenth postpartum day she developed a chill with a temperature of 103 F. but had no specific complaints. Physical examination and urinalysis were normal. Penicillin was started. Two hours after the first dose of sulfadiazine, her temperature went to 106 F. and no further sulfadiazine was given at that time. Blood counts showed a moderate leukocytosis and a slight anemia.

A blood transfusion was started and after 100 cc. the patient developed a severe chill, and soon went into shock. Shortly thereafter an additional 200 cc. of the same blood was given before it was discovered that the blood was a type A and the patient was type O. Shock was combatted successfully and the patient's temperature returned to normal.

On the twelfth postpartum day she became anuric. Ureteral catheterization yielded no urine in six hours. A right renal decapsulation was done and the kidney was blue black in color with the capsule under no tension and tissue apparently in a good state of hydration. Postoperatively, she received only enough parenteral fluids to cover the calculated loss and to maintain blood chlorides. She was transferred to St. John's Hospital for peritoneal lavage but died shortly after admission.

The significant autopsy finding was a bilateral renal cortical necrosis.

It becomes of interest to note the similarity of the preceding cases to the next two presented.

Case 3. A 31 year old housewife had been delivered of a full term stillborn infant four days prior to admission to the hospital. The placenta had been extracted manually and eversion of the uterus followed. She was erroneously thought to be Rh positive and was given a transfusion. A severe reaction followed. A subsequent Rh determination revealed her to be negative. Anuria developed after delivery.

She was treated supportively with parenteral fluids until her nonprotein nitrogen reached 108 mg. per cent. Her prognosis was thought to be poor and she was referred to St. John's Hospital for peritoneal lavage.

Her past history was noncontributory except for childbirth and the removal of an ovarian cyst nine years prior to the present illness.

Physical examination revealed a well developed, well nourished woman who was edematous about the face. The blood pressure was 120/60. The remainder of the examination was normal except for a uterus consistent with the fourth postpartum day.

Continuous transperitoneal lavage with 2.5 per cent glucose in Hartman's solution with heparin was carried out and penicillin was begun on the day of admission and continued for five days.

Laboratory examinations on admission showed red blood cells, 2,990,000; Hg. 7.7 gms.; white blood cells 11,200, stabs 5, segments 73, lymphocytes 18, monocytes 4. Subsequent counts revealed essentially the same picture except for a rise of the red count to 3,560,000.

During her hospital stay all urine examinations revealed many red and white cells and varying amounts of albumin.

The nonprotein nitrogen was 100 mg. per cent on admission and it did not fall appreciably until sixteen days after admission to St. John's Hospital when it fell to 75 mg. per cent. Within two days it had fallen to 40 mg. per cent.

Blood chlorides were kept at low normal levels.

The peritoneal lavage fluid contained large quantities of nonprotein nitrogen, although no accurate quantitative studies were done.

The urine output per twenty-four hours gradually increased from 75 cc. the day following admission to 400 cc. on the eighth day following admission. The output suddenly jumped to 1,075 cc. on the ninth day.

The patient was discharged clinically well on the twenty-second day after admission.

Case 4. A primipara entered in labor on May 24, 1947. On the basis of slight albuminuria and an elevated blood pressure of 150/110, a diagnosis of preeclampsia had been made. After seven hours and twenty minutes of labor, a breech, double footling stillborn infant was delivered at 9:35 a. m.

The patient bled excessively following the delivery. Uterine packing failed to control the blooding. By evening 6,000 cc. of blood and plasma had been given. An attempt was made to ligate the uterine ateries from below but bleeding continued. The patient had been anuric all day.

At 7:25 p. m. a supracervical hysterectomy was done.

Large quantities of blood, plasma and glucose were given throughout the following day. Her urinary output was 50 cc.

The patient lapsed into shock on May 26, 1947, and died. The autopsy revealed the kidney and liver consistent with eclampsia. The microscopic sections of the liver show extensive areas of necrosis, the necrotic areas occupying apparently 75 to 80 per cent of the total liver substance. Small islands of moderately normal liver tissue are seen about many of the periportal spaces and toward the edge of the liver.

Microscopic section of the kidney shows a variety of pathologic conditions. The glomeruli are cellular, giving the typical microscopic picture of acute glomerular nephritis. Many of the glomeruli are completely devoid of blood and other glomeruli are completely filled with blood, giving the appearance of early necrosis or at least thrombosis in the glomeruli. The capsules of the glomeruli are thickened somewhat. The proximal convoluted tubules show wide areas of almost complete destruction. In places the convoluted tubules appear as broad columns of eosinophilic material, in areas showing no nuclei, or, at the best, eosinophilic shadows of former nuclei. In some areas the destruction is not as complete but in these areas there is a cloudy swelling with destruction of large amounts of the proximal tubular cells. In the outer part of the cortex, the distal tubules are not unusual but lower down toward the collecting tubules, many of them are filled with what is apparently blood or at least an eosinophilic debris. There is edema in the collecting tubules and in areas there are broad sinuses filled with blood and apparent hemorrhage between the tubules. In some areas in the outer cortex, there are small fields of apparently complete necrosis. The blood vessels show a necrotic wall and in these areas there is a moderate infiltration of neutrophils. The general appearance is that of acute glomeral nephritis with lower nephron nephrosis, ap-

parently going on to the degree of partial cortical necrosis.

COMMENT

The clinical similarity of selected cases of eclampsia, of the "crush" kidney and of cases of bilateral renal cortical necrosis has never had a parallel pathologically. It is evident, however, that the renal lesion in traumatic anuria or the "crush syndrome" is something more than a lower nephron nephrosis. The gross specimen of kidney in this condition may show a pallor of the cortex suggesting a pronounced ischemia (Bywaters and Dible[8]). Mocroscopically, to be sure, the greatest damage is seen in the lower nephron, i.e., the ascending loop of Henle, the distal convoluted tubules and the collecting tubules. However, the glomeruli and proximal tubules are not without changes. Bywater and Dible describe granular eosinophilic debris in the capsular space of the glomeruli. Their appearance in Mallory and azan-carmine-stained sections suggests that they are autolyzed epithelial cells. These authors also describe an alteration in the lining cells of the capsule especially adjacent to the point of exit of the tubule. The proximal convoluted tubules also are filled with masses similar to those in the capsular space.

Ayer and Gould[9] described the pathologic lesions in seven cases of post transfusion uremia. They noted that the epithelial lesions in the proximal portions of the nephron were more severe in the earlier cases and less severe in cases of longer duration and that the changes in the epithelium of the distal tubules and interstitial tissue were absent early, appeared later, and increased in severity.

From the cases presented, it becomes evident that the clinical picture alone may provide little basis for the differentiation of bilateral renal cortical necrosis, posttransfusion uremia (lower nephron nephrosis) and certain instances of eclampsia. Antecedent factors such as shock, incompatible transfusion and sulfonamides may or may not offer a reliable diagnostic guide. Case 2 presented normal birth with incompatible transfusion and sulfonamides administration. Case 3 presented pregnancy birth with massive persistent postpartum hemorrhage with shock. Thus each of these three cases represented a more or less complete postpartum renal shutdown. Case 2 appeared clinically to be a lower nephron nephrosis on the basis of a live birth, incompatible transfusion and sulfonamide administration, yet, at autopsy, it was found to be an instance of bilateral renal cortical necrosis.

Case 4 was thought to represent a "shock kidney" from massive hemorrhage. It proved to be an instance of eclampsia.

Case 3, the patient recovering, may have been either a lower nephron nephrosis or a patchy renal cortical necrosis.

The concept that these conditions have a common denominator appears plausible. The "crush kidney" presents grossly an ischemic cortex. If such an ischemia were to persist, necrosis would be the logical consequence. Then, too, evidence has been cited that the "crush" or posttransfusion kidney shows microscopically early changes in the proximal portion of the nephron which are somewhat transient in nature and which are followed by the lower nephron nephrosis. This suggests that there may be a difference in susceptibility to ischemia between the upper and lower nephron. The anuria of lower nephron nephrosis is generally regarded to be the result of renal ischemia, at least initially. The tubular obstruction from casts is insufficient to explain the anuria in either the posttransfusion or "crush kidney." It would appear then that if these early changes were to progress to their most severe end point, necrosis of the cortical elements would follow. The early kidney response to the initiating circumstances may be said to progress along either of two lines depending upon a factor or factors unknown, possibly the duration of the corticomedullary vascular shunt.

The correlation pathologically of eclampsia with lower nephron nephrosis and cortical necrosis has not been too obvious; however, the characteristic lesions of lower nephron nephrosis have been previously described in cases of eclampsia.[10]

The case reported showed lower nephron changes along with patches of cortical necrosis. It must be remembered also that bilateral renal cortical necrosis frequently has been associated with the focal liver necrosis seen in eclampsia.

Whatever is shown to be the eventual relationship of these three entities, we believe that eclampsia and bilateral renal cortical necrosis should be considered along with lower nephron nephrosis in the differential diagnosis of postpartum renal shutdown.

SUMMARY

Some of the more important aspects of bilateral renal cortical necrosis have been reviewed and two cases encountered in St. John's Hospital have been presented.

Two additional cases were reported, one of which was eclampsia, to emphasize the clinical similarity of bilateral renal cortical necrosis, lower nephron nephrosis and certain cases of eclampsia. An attempt has been made at least partially to correlate these three entities pathologically.

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Postgraduate Review

LIVER DYSFUNCTION DIAGNOSTIC LABORATORY PROCEDURES

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LABORATORY PROCEDURES which aid in the evaluation of hepatic function are essential to the diagnosis and treatment of liver disease. Liver disorders may develop insidiously with vague symptoms and the diagnosis, if dependent upon symptoms or signs alone, may be delayed until the disease is so far advanced that therapy is of little value. Many attempts have been made to develop tests of the various functions of the liver so that hepatic insufficiency may be detected early. Liver function tests also are useful in the differential diagnosis of jaundice and may be of value in determining the cause of ascites or gastrointestinal hemorrhage, often signs of advanced liver disease.

The fact that multiple liver function tests are used routinely indicates that no single test is satisfactory. The liver, an organ of tremendous reserve and many functions, will not yield a true picture of the pathophysiologic state with one test.

Tumors and abscesses may destroy large amounts of liver tissue without in any way disturbing the function of cells not actually destroyed. Many diseases that attack the human liver are more diffuse and do not leave any appreciable portion free of damage. The cells which escape total destruction suffer some impairment of function as indicated by altered function tests. It is posible that such functional impairment may occur without morphologic evidence of hepatic damage.

The rapidity of liver regeneration may interfere to some extent with the reliability of function tests, particularly those tests which measure the metabolic activity of the liver such as the galactose tolerance, glucose tolerance and amino acid tolerance tests. Liver disease is not static but changes constantly and serial tests with repeated surveys can be quite helpful. Serial liver function tests are of the greatest value in diagnosis and prognosis if done early in the course of liver disease.

A possible solution to the problem of the multiple functions of the liver may lie in the selection of a few tests of liver function which then can be studied thoroughly and thus utilized more effectively. Three assumptions must be applied to the use of such tests. The physician must have in mind a specific question he desires answered, the physician must know the limitations of the tests, and the test must be reliable for the purpose intended. If properly chosen for specific information, used at the most advantageous time during the course of the disease and fully coordinated with the clinical picture, liver function tests are of tremendous assistance in classifying obscure cases and in prognosis. Without a complete understanding of their purpose and limitations, they may only obscure the clinical picture.

Judicious selection of liver function tests will help to answer the following questions: (1) The mechanism and the location of lesions causing jaundice; (2) the degree of hepatic dysfunction and the morphologic changes, and (3) the course of the disease process and the effectiveness of therapy.

Investigators have classified liver function tests on either a functional or anatomic basis. The tests based on functional impairment are the more practical for clinical use. Many tests have been found to be of little clinical value because of their lack of sensitivity or their technical difficulties. Table 1 gives a classification of the tests commonly used in the study of hepatic diseases based upon the various functions of the liver.

Table 1. *A Classification of Liver Function Tests.*

A. Tests based upon the metabolism of bilirubin and its products:
   1. Determination of the bilirubin content of the blood
      (a) Van den Bergh's test-quantitative (1 minute and total)
      (b) The icterus index
   2. The bilirubin tolerance test
   3. The determination of urobilinogen— { in the urine / in the stool.
B. Tests based upon the ability of the liver to excrete foreign substances such as dyes:
   1. Bromsulfalein test
   2. Graham-Cole test.
C. Tests based upon the activity of the liver in carbohydrate metabolism:
   1. The galactose tolerance test
   2. The glucose tolerance test
   3. The levulose tolerance test
   4. The lactic acid test.
D. Tests based upon the activity of the liver in protein metabolism:
   1. The plasma protein level and the albumin-globulin ratio
   2. The amino-acid tolerance test
   3. The Takata-Ara test
   4. The colloidal gold reaction
   5. The blood prothrombin level and its response to vitamin K
   6. The cephalin-cholesterol flocculation test
   7. Weltman Coagulation Band
   8. Thymol Turbidity tests
   9. Other flocculation tests.
E. Tests based upon the activity of the liver in lipoid metabolism:
   1. The total cholesterol level of the blood
   2. The cholesterol ester ratio
   3. Total lipids.
F. Tests dependent upon the detoxifying function of the liver:
   1. Hippuric acid synthesis.
G. Tests dependent on the activity of the liver in water metabolism:
   1. Water tolerance test
   2. Water retention test.
H. Miscellaneous
   1. The alkaline phosphatase test.

BILIRUBIN METABOLISM AND EXCRETION

The metallo-porphyrin of the hemoglobin molecule is protoporphyrin and is the substance which combines the iron of the hemoglobin molecule. The porphyrin ring is characterized by four pyrrol nuclei each having nitrogen at the apex of the ring and joined to other rings by a methane bridge. The

protoporphyrin molecule is distinguished from other porphyrins by the presence of two vinyl groups ($C_{II} = CH_2$) which are retained when the molecule opens in the formation of bilirubin. In hemoglobin there is an attachment of four heme molecules to one of globin. The globin is attached to the pyrrol nucleus by two carboxyl groups.

It was formerly believed that in the formation of bilirubin the protein was split off and hematin was formed. Next the iron was removed followed by the opening of the porphyrin ring to form bilirubin. Hematin formed in vitro by the action of strong acid or alkali is still atached to the protein, globin, as has been shown by Ansen and Marskey. Hematin may be present in the circulating plasma in such pathologic states as malaria, severe liver disease and severe infections. There has been some controversy as to whether or not hematin may be converted to bilirubin. Watson and coworkers have shown that hematin when injected into humans may be converted to bilirubin.

Studies indicate that the first step in the transition of hemoglobin to bilirubin is the opening of the porphyrin ring by removal of the methane bridge. The new compound is a green hemoglobin and is known as verdohemoglobin. It is a straight chain compound from which the iron is split off easily. It is believed that iron must be present before the porphyrin ring opens. The administration of iron-free porphyrin will not result in an increased excretion of bilirubin. There can be as much as 5 per cent of circulating verdohemoglobin present in normal individuals.

Twenty-five gm. of hemoglobin are liberated daily by the hemolysis of red blood cells, and of this from 15 to 20 gms. are used in red blood cell formation and from 5 to 9 gm. form bilirubin. From 200 to 370 mg. bilirubin are formed per twenty-four hours.

The opening of the methane bridge is thought to be an oxidation process. The next step in the conversion of hemoglobin to bilirubin is the splitting off of the iron molecule. The freed iron then travels with the globulin fraction of the plasma proteins while the indirect reacting bilirubin or bilirubin globin travels with the albumin. Bilirubin divested of its globin by the liver cell exhibits a prompt or direct reacting Van den Bergh reaction.

The natural reduction of bilirubin to mesobilirubinogen takes place in the colon and is related to the reducing activities of the bacterial flora. Seidel and Baumgartel showed that this conversion is dependent upon the cystine-cysteine reducing system of the bacterial flora and is an aerobic, anaerobic process. In the conversion of cystine to cysteine (H^+) is released and is used in the reduction of bilirubin.

It was formerly believed that mesobilirubinogen was the only urobilinogen, but chemical and physical evidence indicated that there are really two pigments present in the feces, mesobilirubinogen and stercobilinogen. Collectively these are known as urobilinogen.

Bilirubin

Urobilinogen { Mesobilirubinogen —O_2 Urobilin / Stercobilinogen —O_2 Stercobilin } Urobilin

The normal values for the excretion of stool urobilinogen is from 40 to 280 mg. per day, usually from 100 to 200 mg. The range of urine urobilinogen is 0 to 3.5 mg. per day.

Pathologic states may give the following values:

A. Prehepatic Jaundice
   Hemolytic
   Nonhemolytic—constitutional hepatic dysfunction.

Hemolytic Jaundice.—The stool urobilinogen ranges from 300 to 6000 mg. per twenty-four hours and the urine urobilinogen varies from 1.0 to 200 mg. per twenty-four hours. The usual range is from 5.0 to 30.0 mg. Bilirubin is not found in the urine.

Constitutional Hepatic Dysfunction.—The liver is unable to remove bilirubin from the blood stream. The values for pigment excretion in the stool and urine may be normal.

B. Hepatic Jaundice
   Hepatocellular
   Hepatocanalicular.

Hepatocellular Jaundice.—(That type of jaundice due to inflammation of the liver cells) has a wide variation in the stool and urine urobilinogen. As a rule, the stool urobilinogen content is low to negative during the early, acute phase. The values may be normal or elevated during the period of recovery. Similar fluctuations occur in the urine. Bilirubinuria is a constant finding.

Hepatocanalicular Type.—There is acholia with low values for stool urobilinogen. Despite the decreased urobilinogen in the stool the urine urobilinogen is usually increased. Bilirubinuria is present.

C. Posthepatic
   Complete obstruction
   Incomplete obstruction.

In complete obstruction no bile enters the gastrointestinal tract and stool urobilinogen is negative. No urobilinogen is found in the urine but bilirubin is present.

The values for urobilinogen in the stool and urine will vary when the obstruction is incomplete. Bilirubin is present in the urine in these cases.

There are many theories for the mechanism of excretion of bilirubin by the liver. Paval of Bucharest by photomicrographs showed that the Kupffer cells do not constitute a flat endothelial lining for the liver cords and probably secrete bilirubin directly into the bile system. He feels that liver polygonal cells do not participate in the excretion of bilirubin but absorb fluids and other substances secreted by the Kupffer cells. Injury to the liver polygonal cells permits the regurgitation of bile

into the lymph spaces and thence into the systemic circulation, a process similar to that seen in lower nephron nephrosis.

It cannot be stated definitely whether the Kupffer cells or the liver polygonal cells divest the bilirubin globin of its protein molecule. Such knowledge would aid in the clarification of the mechanism of bilirubin excretion.

TESTS BASED UPON THE METABOLISM OF BILIRUBIN AND ITS PRODUCTS

Since the liver is the organ which excretes bilirubin, the concentration of this substance in the serum is a measure of this function. The amount of bilirubin can be measured directly by determining the amount of bilirubin in the blood stream or indirectly by determining the intensity of the yellow color in the serum.

The Van den Bergh test is used to measure directly the amount of bilirubin globin and sodium bilirubinate in the serum. Since the Van den Bergh test utilizes a specific reaction for bilirubin and is much more accurate than the icterus index, it is preferred. The Van den Bergh reaction depends upon the reaction of bilirubin and Ehrlich diazo reagent producing a specific color reaction. The intensity of the color is proportional to the amount of bilirubin present. The bilirubin that reacts promptly, producing color within one minute, is sodium bilirubinate or the direct reacting bilirubin. This bilirubin has been acted upon by the liver cells and freed of its protein component, globin.

The bilirubin that has not been acted upon by the liver cells reacts in a delayed manner and is the bilirubin globin or indirect reacting bilirubin. Alcohol, when used in the test, hastens the development of color. The total bilirubin is the sum of the direct and indirect reacting bilirubin.

Normal human serum contains a small amount of bilirubin usually not in excess of 1.2 mg. per cent. Of this 1.0 mg. is the bilirubinglobin (delayed reacting type) and 0.2 mg. per cent sodium bilirubinate (prompt reacting type).

In hemolytic jaundice, there is an increase of the delayed or indirect reacting bilirubin due to increased hemolysis of red blood cells. It may be seen also in the condition of "constitutional hepatic dysfunction."

Regurgitation jaundice, or that type of jaundice in which sodium bilirubinate gains access to the systemic circulation after being excreted by the liver cells, is brought about either by intrahepatic or extrahepatic obstruction.

The Icterus Index.—This test is designed to measure the degree of jaundice by determining the amount of yellow color in the serum and is done by comparing the color of the serum with that of a standard solution of potassium dichromate. This is a crude method for measuring the degree of icterus. The reading is inaccurate in the presence of hemolysis and in serums containing increased quantities of *carotene, lipids* and *vegetable* pigments. If the degree of icterus is measured initially with the Van den Bergh reaction the icterus index may be used as a simple, fairly accurate way of following the course of the disease.

Normal: less than 8 to 10 units; latent jaundice: 10 to 20 units; clinical jaundice: more than 20 units. Divided by 10, the icterus index approximates a rough estimation of the mg. per 100 cc. of blood bilirubin.

The Bilirubin Excretion Test.—Early experiments by Tarchanoff showed that intravenously injected bilirubin was excreted by the liver into the bile. It has been assumed that the rate of disappearance of intravenously injected bilirubin is dependent upon the excretory function of the liver.

A dosage of 1 mg. per Kg. of body weight or a total of 50 mg. of bilirubin is given. Serial determination of blood bilirubin levels are made. The test is not commonly used. However, it is said to be a sensitive test of liver function in the absence of jaundice.

Urobilinogen Determination.—Varying fractions of the urobilinogen are reabsorbed into the portal circulation and returned to the liver. Of chief importance in determining the amount reabsorbed is the degree to which the colon is filled with feces. Increased filling causes increased reabsorption and as a consequence smaller amounts are excreted in the stool.

The reverse tends to be true in diarrhea. In extreme diarrhea unchanged bilirubin may be excreted. Rapid oxidation of bilirubin to biliverdin results in the green color of the stool.

Under normal circumstances the reabsorbed urobilinogen is almost completely utilized or excreted by the liver. Less than 3.0 mg. escapes in the urine in twenty-four hours and the commonly used qualitative tests are usually negative. Increased amounts of urobilinogen in the urine is indicative of hepatocellular dysfunction.

In evaluating small amounts of urobilinogen in the urine it is necesary to have some idea of the amount of urobilinogen reabsorbed from the bowel. This information is obtained by determining the amount of urobilinogen in the stool. An increase in urinary urobilinogen is not necessarily a sign of increased blood destruction as is so often thought. More information concerning the course of a jaundiced patient and liver disease can be obtained by repeated or serial quantitative tests for urine and stool urobilinogen.

Table 2. *Values in Normal and Pathologic State.*

	Urine mg. per day	Feces mg. per day
Normal	0.5 - 1.5	100 - 200
Hemolytic jaundice	5 - 30	600 - 2000
Neoplastic jaundice	less than 0.5	less than 0.5
Calculus jaundice	0 - 50	2 - 300
Parenchymal jaundice	0.5 - 100	10 - 300

(Table from Watson, New England J. Med. 227:705, 1942.)

In cases of complete biliary obstruction the values for fecal urobilinogen are usually less than 5 mg. per day. This amount is so small that the amount reabsorbed is insignificant and less than 0.3 mg. will be found in the urine. The stool and urine uro-

bilinogen when followed from day to day can aid in determining the pathogenesis of jaundice and in following the course of the disease.

The following table gives the values in the normal and various pathologic states.

EXCRETORY TESTS

1. *Bromsulfalein Test.*—The principle of the test depends on the ability of the liver to eliminate from the blood in a measured time a designated amount of bromsulfalein. The amount of dye remaining in the serum after the test period is determined by comparison with a known standard. The site of removal of the dye is uncertain but clinical and experimental evidence suggests that both the Kupffer cells and liver polygonal cells may play a role.

The 5 mg. per kilo dose of dye allowing 30 minutes for excretion is the most satisfactory and sensitive. Any dye remaining after 30 minutes is evidence of impairment in excretion.

2. *Graham Cole Test.*—The test is not used as a test of liver function, but to aid in the diagnosis of gallbladder disease. It should be remembered that the dye given intravenously or orally is removed by the liver from the blood stream and excreted into the biliary system. A diseased liver, whether jaundice is present or not, will fail to excrete the dye properly and the gallbladder will not be visualized.

3. *Bilirubin Tolerance Test.*—The test has already been discussed.

TESTS OF PROTEIN METABOLISM

Under normal circumstances amino acids derived from protein digestion are brought to the liver in the portal circulation where they are deaminized with the formation of urea. The blood amino acid level and blood urea levels are therefore of value in some cases of liver disease. Amino acids and individual amino acids have been given in the hope of devising an amino acid tolerance test. To date the technical difficulties involved and lack of sensitivity make the test unsatisfactory.

In liver disease there is frequent alteration of the serum proteins. The alteration depends upon the type, severity and duration of the disease process. There may be alterations in the albumin fraction due to impairment in liver cell function. Hyperglobulinemia may occur in acute and chronic liver diseases. The value of the total serum proteins as a liver funtion test is not as informative as the values of the individual fractions. The expression of the total without the albumin-globulin ratio may lead to confusion in interpretation.

Prothrombin and fibrinogen are formed exclusively in the liver. A reduction in the blood levels of either fraction indicates impairment of hepatic function. The prothrombin time is impaired much more often than the blood fibrinogen level. A decrease in blood prothrombin occurs as a result of (1) a decrease in available vitamin K, (2) absence of bile salts from the intestine preventing absorption of vitamin K, (3) serious liver injury which interferes with the utilization of vitamin K.

Serious prothrombin deficiency therefore may result from lack of absorption of vitamin K as seen in obstructive jaundice or the inability to manufacture prothrombin as is seen in severe inflammatory lesions. Normal values for the prothrombin time should be between 90 and 100 per cent.

The prothrombin time will increase in response to the administration of vitamin K unless there is severe liver damage. This is the "prothrombin response test." From 1 to 2 mg. of vitamin K is injected intramuscularly. The prothrombin time is repeated within the next twenty-four hours. A response of 10 per cent or more indicates good hepatic function.

Cephalin Flocculation.—Principle: The test depends upon the capacity of the blood serum to flocculate a colloidal suspension of cephalin-cholesterol emulsion. A positive reaction is seen in abnormal serum when (1) the gamma globulin is increased abnormally as in Kala azar, (2) when the albumin fraction is abnormally low, and (3) when the albumin fraction is altered so that it fails to inhibit the flocculation of the gamma globulin fraction. In cirrhosis all three mechanisms probably play a role, but in hepatitis (1) and (3) are the most important factors.

The cephalin flocculation is not a test of liver function, but indicates polygonal liver cell damage. Cases with extensive disruption of the nuclei of the liver cell give the strongest reaction. A two to four plus reaction is considered a positive test.

False positive tests are seen when the serum-saline-antigen mixture is exposed to light during the test period, when the serum-saline mixture is allowed to stand before the addition of the antigen, and when the final mixture is subjected to a temperature greater than room temperature. Bacterial contamination may cause a false positive test.

Thymol Turbidity Test.—Turbidity is produced in a barbital buffer solution saturated with thymol on the addition of serum from patients with liver disease. The test depends upon the alteration of the beta globulin and the lipid fractions of the serum. Normal values are 0 to 4 units after thirty minutes and no flocculation at eighteen hours.

Takata ara, formol gel, colloidal red and zinc sulfate precipitation tests depend upon qualitative and quantitative alterations of the globulins and lipid fractions of the serum.

TESTS OF CARBOHYDRATE METABOLISM

Galactose tolerance test may be useful in the diagnosis of acute liver injury as a positive result is obtained in a high percentage of such cases. In early obstructive jaundice a positive test is seldom seen. The duration of the liver disease is important in interpreting the results of the galactose tolerance test, since in obstructive jaundice, liver injury may develop in several weeks. In hepatitis there may be

sufficient recovery in several weeks to give a negative test.

The test consists of giving 40 gm. of pure galactose by mouth and determining the amount of galactose in the urine collected over a six hour period. Values of 3.5 gm. or more indicate an abnormal test. Glucose interferes with the determination of galactose in the urine and must be removed by fermentation with yeast.

An intravenous test has been used and blood galactose levels determined, but the technical difficulties are considerable.

In severe liver damage hyperglycemia or hypoglycemia may occur. The glucose tolerance test may be normal. Disturbances in glucose metabolism are usually too insensitive to be of much value.

FAT METABOLISM

The liver has an important role in lipid and cholesterol metabolism. Cholesterol and cholesterol ester values are increased in the blood in regurgitation jaundice of extrahepatic origin and in prolonged hepatitis with intrahepatic obstruction. The increase is probably due to the cholesterol content of regurgitated bile. In parenchymal jaundice the total cholesterol is normal or slightly decreased. In liver disease the determination of total cholesterol without determination of the esters is of little clinical value. The ratio of cholesterol to cholesterol esters is of value in the differential diagnosis of obstructive and parenchymal jaundice. In diffuse liver disease there may be a progressive fall in the cholesterol esters. In fatal cases of hepatitis there may be a rapid fall to low levels with little or no change in total cholesterol. Serial determinations are of value in interpreting the progressive changes which may occur.

TESTS OF DETOXIFICATION FUNCTION

Hippuric Acid Test.—Ingested or injected sodium benzoate is conjugated by the liver to hippuric acid which is then excreted in the urine. This function is one of detoxification. The oral test consists of giving 5.9 gm. of sodium benzoate by mouth and noting the amount of hippuric acid excreted in the urine in four hours. In performing the intravenous test 1.77 gm. of sodium benzoate are given and the urine is collected in one hour. Values of less than 3.0 gm. in the oral test and less than 0.7 gm. by the intravenous method are considered abnormal.

If renal function is abnormal the excretion of hippuric acid is impaired and the test is unreliable.

MISCELLANEOUS TESTS

Serum Alkaline Phosphatase.—Alkaline phosphatase is an enzyme that hydrolyzes phosphoric acid esters, liberating the phosphate ion. Alkaline phosphatase is excreted by the liver cells into the bile. The normal serum alkaline phosphatase is from 1 to 4 Bodansky units. In hepatocellular disease the values may be slightly to moderately elevated (4 to 10 units). In obstructive jaundice there may be marked elevation, 10 or more units.

The alkaline phosphatase may be elevated in bone diseases and carcinoma and these must be excluded before attempting to evaluate the test in liver disease.

HEMATOLOGIC STUDIES

Routine studies of the blood cells may reveal abnormalities. The liver serves as a site of red cell production in early neonatal life. In the adult it stores the antipernicious anemia factor and also contains large amounts of iron and copper. Anemias of various types may occur in liver disease. Hypochromic microcytic anemias are seen after hemorrhages and hyperchromic macrocytic anemias may occur also. The white cells also may show variations in total count and the Schilling differential may be altered in various types of liver disease. In chronic liver disease with splenic enlargement noted, there may be anemia, leukopenia and thrombocytopenia of hypersplenism.

Blood Coagulation.—As indicated earlier, the liver produces prothrombin, fibrinogen, heparin, globulins and perhaps other substances concerned in this vital function. Abnormalities in these tests presumably may be the result of liver dysfunction.

In the clinical study of liver disease, the differential diagnosis of jaundice, and in following the course of liver disease investigators have shown that a battery of liver function tests are necessary. Because of the many functions of the liver, it is readily seen that a single test may be of little value.

The following groups of tests are suggested as a guide in evaluating patients with jaundice and liver dysfunction.

Table 3. *Liver Function Tests.*

A. Tests used in the differential diagnosis of jaundice and in screening out liver disease:
   (1). Complete blood cell count.
   (2). Reticulocyte count.
   (3). Stool urobilinogen determination.
   (4). Urine bilirubin and urobilinogen determination.
   (5). Direct and indirect Van den Bergh.
   (6). Cephalin flocculation and thymol turbidity.
   (7). Bromsulfalein—5 mg. per kilo.
   (8). Blood diastase.
B. For differential diagnoses, progress of jaundiced patients and those with liver disease are the following:
   (1). Serum bilirubin—direct and indirect Van den Bergh.
   (2). Urine and stool urobilinogen.
   (3). Urine bilirubin.
   (4). Flocculation tests.
   (5). Cholesterol and cholesterol esters.
   (6). Alkaline phosphatase.
   (7). Albumin and globulin fractions.
   (8). Prothrombin time and response.

NEEDLE BIOPSY OF THE LIVER

These procedures are becoming increasingly useful and with present day methods of control of hemorrhage, the procedure is relatively safe.

The indications for liver biopsy are, of course, liver disease of undetermined origin in which case the biopsy may be diagnostic. The needle biopsy also may be done to follow the course of liver disease and to determine the results of therapy. The needle biopsy of the liver is useful in prognosis and in some instances may make it possible to avoid an unnecessary or dangerous laparotomy.

Contraindications to liver biopsy include the following: marked chronic passive congestion of the liver, hemorrhagic diseases, infection over or along the route the needle will traverse and, finally, an uncooperative or apprehensive patient.

A variety of methods are used in the performance of the test and all are satisfactory in experienced hands. The transpleural and abdominal approaches are most frequently used.

The abdominal approach is simple and satisfactory when the liver is large and easily felt. The transpleural approach is preferred when the liver is small and atrophic.

Some investigators use the peritoneoscope to guide the needle in liver biopsy while others attempt to secure the specimen through the peritoneoscope.

Complications which occur as a result of needle biopsy are few but may be serious. They include hemorrhage which occasionally may lead to death of the patient.

Bile peritonitis may result from leaking bile ducts. This is an unusual complication.

Pneumothorax may be produced if the transpleural approach is used and, of course, infection may result if there is a break in the aseptic technic which is used.

Complications are infrequent and occur in less than 1 per cent of the cases.

The effectiveness of the needle biopsy is sufficiently great as to outweigh the disadvantages. Contrary to what is thought it is not unusual to demonstrate a pathologic condition in the liver which is fairly well localized as, for example, metastatic malignancy or pyogenic abscess.

CONCLUSION

Recent advances in liver function tests are such that a basic battery of tests must be available to the clinician.

If such tests can be supplemented by a needle biopsy of the liver, the clinician will be assured a high degree of diagnostic accuracy.

It is best to use the same tests repeatedly to assure accuracy in performance and interpretation. When a new test is added, it must be interpreted with caution and on the basis of previous experience with older and more established tests. The needle biopsy of the liver is a valuable aid in evaluating new tests.

Differentiation of extrahepatic and intrahepatic jaundice is important since in the former surgery usually is indicated while in the latter it is contraindicated.

Finally, it might be emphasized that most liver function tests are not technically difficult and can be done readily with existing laboratory facilities.

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DOCTOR RECOMMENDS INSECT REPELLENTS TO VACATIONISTS IN SOUTHERN AREAS

Vacationists in tropical or subtropical areas would do well to have protective inoculations and learn about insect repellents, advises a Cincinnati dermatologist.

Several effective repellents have been developed in recent years, Dr. Leon Goldman of the University of Cincinnati College of Medicine points out.

During World War II, thousands of compounds were tested for their repellent and toxic qualities against mosquitoes, lice, mites, ticks and other such pests, he writes in the November issue of *Archives of Dermatology and Syphilology*, published by the American Medical Association.

"For insects which carry disease, such as ticks, mosquitoes and some flies, the repellents have an importance far beyond the prevention of the initial bite," Dr. Goldman says.

Duration of activity varies with the type of repellent, according to Dr. Goldman. A mosquito and tick repellent known as NMRI-448 is effective for about eight hours against mosquitoes and is said to be effective as long as 12 days against ticks. Clothing impregnation prolongs the period of activity.

As a repellent for chiggers, Dr. Goldman recommends benzyl or benzoate preparations which are used on the feet and legs.

In general, a cream type of repellent is preferable to a liquid type, he says.

Mixtures of repellents developed by the armed services during World War II underwent controlled tests in regard to possible poisoning and irritation of the skin, he adds. As a result of such work, repellents available now are not likely to irritate the skin.

A. M. A. COUNCIL WARNS AGAINST UNWISE USE OF COLD TABLETS

The Council on Pharmacy and Chemistry of the American Medical Association at a recent meeting warned against indiscriminate use of antihistaminic substances now being widely promoted for prevention and treatment of colds.

The council said:

"The council recognizes the evidence that has been accumulated relative to such uses but it is not convinced that this is sufficient to warrant the positive statements that are being made.

"Cases already are reported and records show that about one third of those who take these drugs become drowsy or even fall asleep while at work or in occasional cases even when driving cars or operating machinery.

"Experience with these drugs is not yet long enough to know whether or not they are harmless when used over long periods of time. Furthermore, the amounts taken in persistent colds may be definitely beyond what has been established as safe.

"The council expects to publish a careful review of the present status of these products so that physicians who prescribe them may be aware of the possibilities."

DOCTORS TOLD TO WATCH FOR SPREAD OF NEW DISEASE

During the warm seasons, doctors throughout the United States should be alerted to a recently recognized disease, rickettsialpox, according to an article in the December 17 *Journal of the American Medical Association.*

Possibility of the spread of the disease from New York to other cities in the United States is highly probable, says Dr. Leslie Paxton Barker of St. Luke's Hospital, New York.

The first cases of rickettsialpox were discovered in the Queens section of New York in 1946, according to Dr. Barker. Since then about 150 cases a year, from Queens and three other boroughs of the city, have been reported to the New York City Department of Health.

No deaths have been reported from the disease. Rickettsialpox is harbored by the common house mouse and is transferred to human beings by the rodent mite which infests the mice.

The bite of the mite produces an initial lesion resembling a pimple or boil. Other symptoms of rickettsialpox are fever, sweating, headache and a rash, Dr. Barker says.

Cause of the infection is a rickettsia, a minute microbe somewhat like bacteria and somewhat like viruses.

Rickettsialpox frequently has been confused with chickenpox, and has even been thought to be smallpox, typhoid and typhus, Dr. Barker points out.

More than 30 cases of rickettsialpox were observed from April to September in 1947 and 1948 at the skin clinic of St. Luke's Hospital, Dr. Barker reports.

Clinical Conferences

THE DIAGNOSIS OF CANCER OF THE BREAST

Cancer Control Committee, Department of Surgery, St. Louis University

CHAIRMAN: In the case presented it will be endeavored to emphasize the main points in diagnosis of carcinoma of the breast. May we have the history?

HISTORY

Mrs. R. P., aged 60, made her first clinic visit on February 17, 1933, for a gynecologic condition. Treatment was deferred. Her second visit was on December 27, 1945, for the same complaint.

Chief Complaint.—Mass in the breast (July 16, 1948).

Present Illness.—Patient noted mass in the left breast three weeks prior to going to the clinic.

Past History.—Uterine suspension, cervical amputation for decensus uteri and cervical polyp was done on January 7, 1946. No mass was found in the breast by the examiner.

Family History.—Father died of cancer of the lip at the age of 70.

Laboratory.—Kahn test was negative in 1933, 1945 and 1946.

Physical Examination.—In the outer midportion of the left breast there was a hard mass about 3 cm. in diameter. There was dimpling (orange peel) of the overlying skin, to which the mass was attached. There was a lymph node measuring 1 cm. in the left subpectoral region.

CHAIRMAN: By way of introduction to the subject, may I state that in this institution there are the following rules: First, all masses or lumps in the breast are carcinoma until proved to be otherwise; second, all masses that are removed should be examined immediately by the pathologist, and a frozen section made if the lesion is not clearly benign from gross examination; third, provisions should be made to follow the removal of the mass with radical surgery if the frozen section should reveal malignancy. This radical surgery should be done at the same time the mass is removed.

Carcinoma of the breast is one of the most common tumors in women. Almost 99 per cent of the cases of carcinoma of the breast are found in women. The 1 per cent of men with cancer of the breast are more apt than women to neglect the lump, so that results of cancer of the male breast generally are considered more dismal than results of treating cancer in the female. But when cancer does occur in the male, it follows the same pathologic and clinical picture as in the female, as S. Horsley, Jr., has shown.

Carcinoma of the breast usually occurs in women after 30 years of age and is probably most common just before or at the menopause, from 40 to 50 years. As a rule, one does not find carcinoma of the breast in the early twenties.

Carcinoma of the breast may develop after the menopause, also, and even in older females. When it does, the carcinoma does not seem to grow as rapidly as in the younger individuals.

In examining the breasts of a woman, the patient



should be nude from the waist up. A gown with short sleeves, open in the front is the best type of gown for these patients to wear while they are waiting to be examined. Then, when the nurse brings the patient into the examining room, the gown is easily slipped off of the shoulders and caught around the waist. The patient should sit straight and erect facing the light. Inspection of the breast should constitute the first part of the examination. One should compare the size of each breast, noting differences in size. Carcinoma of the breast occasionally will cause the breast involved to be somewhat enlarged. The next thing one should look for is the relative height of the nipples in comparison to one another. Frequently, if the tumor of the breast happens to be near or beneath the nipple, that breast will show a nipple which is somewhat higher than the other breast. If the tumor mass has been present long enough to become attached to the skin around the nipple, retraction of the nipple may occur due to the contraction of the fibrous tissue beneath the skin around the areola. One should remember, however, that even benign masses around the nipple may become adherent to the nipple if one or more of the ducts coming to the surface becomes involved in the process producing the mass.

Likewise, one should look for dimpling of the skin

The Cancer Control Committee (Surgery) is composed of William E. Leighton, M.D., Charles F. Sherwin, M.D., E. Lawrence Keyes, M.D., John J. Connor, M.D., and E. J. Jordan, M.D.

From the Department of Surgery, St. Louis University School of Medicine, aided by grant (CT-619) from the National Cancer Institute, United States Public Health Service.

The Cancer Control Committee of St. Louis University will publish a series of articles on the most common types of cancer. The aim is to bring before the student, general practitioner and specialist articles dealing with the diagnosis and prognosis of cancer of various organs.

The articles will be written from the viewpoint of the pathologist, radiologist, general practitioner and surgeon. It is hoped that the dissemination of information about early diagnosis and early adequate treatment will lead to a better prognosis and a better five year survival rate.

over any part of the breast. Dimpling of the skin will be caused by the tumor mass becoming attached to the skin and then subsequent contraction of the fibrous tissue in the area. If a good sized area of the skin is attached to the tumor mass, the skin will be dimpled in that area giving the skin the appearance of an orange peel. "Orange peel" skin (peau d'orange) is a rather late sign in carcinoma of the breast.

This patient shows a slight enlargement of the breast on the left side in the outer portion. In this area, likewise, one can see that the skin is somewhat dimpled and there is the "orange peel" skin. It also is seen that the nipple on this breast is slightly higher and a little more retracted than the other breast. Now, following the recommendations of Haagenson, have the patient raise both arms over her head. This brings out the dimpling of the skin. Sometimes, in early cases, a little dimpling can be seen by carefully moving the arm of the patient and the electric light of the examiner.

Probably, the best way to examine the breast is with the flat of the hand. This should be done gently. It is, perhaps, the better procedure to examine the normal breast first and then examine the breast with the mass in it. All four quadrants of the normal breast should be palpated, not forgetting the axillary tail. Then the breast with the mass should be examined, palpating the whole breast first and then examining the quadrant in which the tumor is located. The mass in this patient is in the outer quadrant of the left breast just about the midportion. It is about 3 centimeters in diameter, is hard and moves freely over the underlying tissue, but one cannot pick up the skin over the mass. This is the area in which the dimpling of the skin is present. It means that the tumor mass is attached to the skin in this area.

In order to determine whether the mass is attached to the pectoral muscle or not, the hand of the patient should be placed on the hip of the same side being examined. Then, while the patient exerts pressure against the hip with the palm of the hand, the breast on the same side should be examined. It is then much easier to tell whether or not the tumor mass is freely movable, except when it is attached to the skin.

The next procedure is to palpate the axilla, the supraclavicular and infraclavicular areas for any enlarged nodes. This patient has one enlarged node about ½ to 1 centimeter in diameter in the anterior portion of the axilla on the left side.

To palpate the axilla, pass the fingers up to the apex then slowly down against the thorax. Finally, feel the pectoral fold.

Findings are then confirmed by repeating the examination with the patient lying flat on her back. Again, the dimpling is brought out. Sometimes one feels a tumor more easily with the patient seated, sometimes with her supine.

From this history and the above findings one can be almost sure that he is dealing with a carcinoma of the breast. Perhaps the surgeon would comment on this case.

SURGEON: The diagnosis in this case is fairly obvious. The patent presents herself with a mass in the left breast and a palpable mass in the anterior portion of the left axilla. The nipple on the left side is somewhat higher than on the right. There is a dimpling of the skin over the mass. The mass is hard, fixed to the skin, but movable on the deep structures beneath. This is a point in her favor, but, I believe that this mass has been present longer than the three weeks that the patient gives in her history. However, I believe that she should have a radical mastectomy. Nearly all surgeons in this country agree that the radical mastectomy is the hope of cure in these cases. Whenever a case of carcinoma of the breast is presented to a surgeon he should take all factors into consideration and then decide whether the treatment to be given is aimed at actual cure or only at arrest or partial arrest. Since diagnosis is being stressed in this case, I will not go any further into the treatment or prognosis.

CHAIRMAN: Does the X-ray Department have any suggestion as to diagnosis of carcinoma of the breast?

ROENTGENOLOGIST: I think that all patients with a suspicious lesion in the breast should have a chest plate before any surgery is done. Any complaints, especially those referable to the bones, should be investigated. One sees small breast tumors which have sent out metastases to the bone before the patient is seen by the physician. X-rays of the breast tumor offers little in regard to the diagnosis of the condition.

QUESTION: Was the tumor transilluminated?

ANSWER: No. Cancer generally fails to transilluminate, but the method has added little to other methods of diagnosis.

CHAIRMAN: Will the pathologist say a few words about diagnosis of carcinoma?

PATHOLOGIST: One usually recognizes the following types of carcinoma of the breast: scirrhus, medullary, adenocarcinoma, comedo, inflammatory carcinoma. Some idea of the type of tumor may be had from the gross examination of the patient. In the scirrhus carcinoma, the mass rarely exceeds 4 centimeters in diameter and is hard. In medullary carcinoma the tumor grows more rapidly than the scirrhus and the patient usually goes to the clinic with a tumor mass in her breast which is often 5 or more centimeters in diameter. The "orange peel" skin that is frequently seen in scirrhus carcinoma is more or less absent in medullary carcinoma. It seems that medullary carcinoma causes a stretching rather than a dimpling of the skin and when the tumor is large, ulceration of the skin often occurs. All of these are not hard and fast rules, but only what usually happens.

Pathologists agree with the surgeons in their belief that all lumps or masses in the breast are cancerous until proven to be otherwise. Diagnosis by

paraffin section is preferred if possible. This cannot be done at the time of operation when the surgeon wants an immediate report and is ready to do a radical operation depending on the results of the examination of the mass. Therefore one must rely on the gross examination and a frozen section. I think that one can be about 99 per cent correct in the frozen section diagnoses. The other 1 per cent will probably be diagnosed by paraffin section.

Visitor: I practice in a small town where we have a fairly well equipped hospital, but no pathologist. Do you think I should biopsy every lump in the breast in order to prove the diagnosis and to rule out carcinoma?

Surgeon: Carcinoma of the breast is the same disease whether it occurs in a patient residing in a small town or in one living in one of the large metropolitan centers. The only common condition of the breast that can be harmful to the patient is a carcinoma. No matter where the cancer occurs, a mass or lump is a cancer until definitely proven to be otherwise. In the first place, no man whether practicing in the large city or small town, should be doing breast surgery unless he can recognize the gross appearance of carcinoma of the breast. I believe that all tumors of the breast should be examined immediately and frozen section done immediately. If all the facilities for immediate histologic section are not available, I think it is unwise to operate, remove the mass and then wait a week or ten days for the paraffin section to say whether the section is malignant or not.

This type of program is hard on the patient, both physically and mentally. It is rather difficult financially also. The doctor in a small community should know himself whether or not he can tell carcinoma grossly. If he can read his own sections, so much the better, but if he can do neither and knows himself that he cannot, then he should not be doing cancer surgery.

If there is any doubt about the case, if the woman is in the so-called cancer age, if the breast shows some of the signs discussed previously, then operation and removal of the mass is not enough. A complete histologic examination is the only certain method of diagnosis. It is useless to spend funds educating the physician and the public about the advantages of early diagnosis and early treatment unless it is followed through with a sound program which is the best physically and mentally for the patient.

Pathologist: I do not agree with all that the surgeon has said. In a small hospital, if the pathologist cannot be present at the time of operation, I think that a wide excision of the tumor mass should be done. Waiting a week or more before proceeding with the radical operation is believed by the majority of leading pathologists to have little effect on the eventual prognosis of the case. However, it does involve another anesthesia and mental discomfort to the patient. Perhaps it is better to be sure by paraffin section than to rely entirely on frozen section and regret that a nonmalignant tumor resulted in a radical breast amputation.

Chairman: In conclusion, I will sum up what has been said about the diagnosis of carcinoma of the breast. Given a patient with a mass in the breast, it is up to physicians to prove that this mass is not cancer. That thought should be foremost in the minds of all. Inspect the patient in a good light, having both breasts exposed and the patient sitting up, square and erect. Remember that normally the left breast may be slightly lower than the right. Remember, also, that the normal nipple points slightly downwards and outwards. Also, retraction of the nipple to be of any value in diagnosis must be of fairly recent origin. Retraction of the nipple will occur in carcinoma of the breast if the mass is located near or beneath the areola. Do not say that this case or that case cannot be cancer of the breast because the nipple is not retracted or there is no dimpling of the skin. Some cancers of the breast do not cause dimpling of the skin. If the mass is hard and fixed to the skin, dimpling of the skin probably will occur over the tumor.

If one finds that the mass is hard and fixed either to the skin or underlying tissues, suspicion should be aroused. Even if no fixation is found and a mass is found, one must still be alert.

Finally the only true way of arriving at a diagnosis is by removal of the mass and study of histologic section.

PROGNOSIS OF CANCER OF THE BREAST

Cancer Control Committee, St. Louis University

Chairman: The ability to offer to the patient, and more frequently to the relatives, a prognosis which will follow any medical or surgical procedure is acquired in the practice of medicine only after years of study and experience. Some physicians attain this ability early, some late and some never are able to tell what probably will happen to a given case. The young physician starting practice and confronted with the question as to what might happen in certain cases frequently finds himself in an embarrassing position when the patient does just the opposite to what the physician told the patient and his family. Many physicians have had such experiences.

An attempt will be made to show what must be done to arrive at a logical prognosis in carcinoma of the breast. Carcinoma of the breast is a bad disease and any attempt by the surgeon to say who among his patients probably will survive and who will most likely die of the disease is a job which must not be taken lightly. As will be seen, it is only by a logical accumulation of facts and by adequate radical treatment that a prognosis can be given in an honest manner.

The Cancer Control Committee is represented by William E. Leighton, M.D., Charles F. Sherwin, M.D., E. L. Keyes, M.D., and E. J. Jordan, M.D., St. Louis.

From the Department of Surgery, St. Louis University School of Medicine, aided in part by a grant from the National Cancer Institute, United States Public Health Service.

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Laryngoscope, Feb. 1935, Vol. XLV, No. 2, 149-154; Laryngoscope, Jan. 1937, Vol. XLVII, No. 1, 58-60; Proc. Soc. Exp. Biol. and Med., 1934, 32,241; N. Y. State Journ. Med., Vol. 35, 6-1-25, No. 11, 590-592.

CASE REPORT

ADENOCARCINOMA OF THE BREAST. FIVE YEAR SURVIVOR FOLLOWING RADICAL MASTECTOMY

Mrs. K. B., aged 68, first visited the clinic on September 5, 1942, and the last visit was in December 1947.

Chief Complaint.—Lump in the right breast of one week duration.

Present Illness.—Patient first noted the lump in the right breast on August 25, 1942, while scratching the site. There was no known trauma.

Past History.—There were no significant past illnesses.

Family History.—There was no history of cancer in the family.

Physical Examination.—The right breast was larger and the right nipple lower than the left. An ovoid hard mass measuring about 4 cm. in diameter was located just superior to the areola. There was a slight loss of elasticity of the right nipple. The right axillary nodes were larger than the left, measuring up to 1 cm. Blood pressure was 210/110.

Laboratory.—Kahn test was negative; red blood cells 4,740,000; Hg. 14.3 gm.

Diagnosis.—Carcinoma of the right breast.

Recommendation.—Excision with frozen section.

Operation.—On September 29, 1942, a hard irregular mass in the right breast, 2 cm. above the nipple, approximately 2 cm. in diameter, was found. There were two lymph nodes in the axilla. Excision of the mass and areolar tissue of the axilla, of the breast and muscles down to the ribs and of the upper portion of the right rectus sheath was carried out.

Pathologic Report.—The tumor mass measures 6 by 7 by 5 cm. Central portion is gelatinous. Microscopically, hyalinized connective issue is invaded by neoplastic cells which are cuboidal and arranged to form glands; cytoplasm is granular and many cells are vacuolated. There are occasional mitoses and nuclei are hyperchromatic. Glands contain mucin and there is mucin in the stroma. No tumor in lymph node was examined. Diagnosis: Mucinous carcinoma of the breast.

Follow-up.—There were sixteen visits to the Tumor Clinic, the last one in October 1947. Red blood cells in January 1946 were 5,200,000. There was no sign of recurrence five years after the operation. The patient also visited the hypertension clinic frequently. A sister reported that the patient had symptoms of a cerebral vascular accident about May 1948.

SURGEON: This patient is an elderly female with a large, hard mass in the breast and palpable nodes in the axillary space. She had been under treatment for hypertension and her blood pressure was more than 200 systolic and 100 diastolic. She was not only a bad risk surgically but, with the clinical findings of a large, hard tumor, loss of elasticity of the nipple, plus palpable glands in the axilla, one would say that her chances of survival of the carcinoma of the breast would not be much better than in an untreated case. However, she is alive and well (she still has her hypertension) since 1942. She was operated on, and a radical mastectomy was done under general anesthesia. Before continuing, I would like to have the pathologist describe the tumor and the results of the microscopic study.

PATHOLOGIST: The frozen section done at the time of operation substantiated the clinical diagnosis of carcinoma of the breast. Grossly, the tumor was hard and irregularly shaped. It was about 6 by 7 by 5 cms. The central portion of the mass was gelatinous. There were glands enlarged up to 1 cm. in the axilla. The slide is made from a paraffin section, and the usual H and E stains are employed. One sees the hyalinized connective tissue invaded by neoplastic cells which are cuboidal in shape but are attempting to form glands and acini. The mitotic count is not too high. The cells are not too anaplastic. Many of the abortive glands contain mucinous material and the same mucinous material can be seen in the stroma. Many sections of each of the lymph glands have been made and, after careful study, it was impossible to find any tumor cells in the lymph glands. Therefore the case was diagnosed as a carcinoma of the breast, mucinous type, without lymph gland metastases.

SURGEON: One now begins to see a little light. This case explains a few of the mysteries associated with ability to offer a good or poor prognosis. Many famous physicians became famous, not only because they were able to treat the patient successfully, but, quite often, because they were able to tell the patient and his family just what would probably happen in a given case. If the old family doctor said that Uncle Tom was going to get well—Uncle Tom usually did get well. Sometimes, the reverse was true, but, either way, the knowledge of the family doctor was never doubted. These famous doctors did not suddenly acquire insight into the future; nor were they just good guessers. In the first place, they knew their patients and the background and family of their patients, which is often lacking today. They usually arrived at this diagnosis, treatment and prognosis by a logical and exact attention to detail. All of their findings, plus the patient as a whole were considered.

In order to arrive at a prognosis, whether good or bad, which will stand up in the face of the data at hand, it is evident that the doctor must be well grounded in the fundamentals of the organ concerned. He should be acutely aware of the normal anatomy, physiology and pathology of the breast. He should know the potentialities of the various types of carcinoma of the breast. Also, he should be well acquainted with the procedures to be employed to rid the patient of the disease. This latter involves a profound understanding of the anatomy, physiology and pathologic anatomy of the breast. Radical cancer surgery is no field for the neophyte or some ultraconservative surgeons.

If one takes all the findings in this case, one can see why the prognosis was good as to the chances of this individual's surviving the carcinoma of the breast. It is true that she had many signs which would tend toward a poor prognosis—namely, a hard, 3 inch mass in the breast plus loss of elasticity of the nipple and plus the palpable glands in the axilla. The mass was attached to the skin.

However, when one considers the case as a whole, one begins to see the reason for her survival over this period of time. Age was in her favor. The car-

cinoma cells were not too anaplastic and did show some evidences of attempted gland and acinar formation, though the mitotic count was high. The most important finding was the negative one—the lymph glands in the axilla, although enlarged, did not have any demonstrable tumor cells even though a careful search was made. This was the big point in her favor.

As was said before, the patient should be individualized and, after all the evidence is available, one should be able to give the proper prognosis regarding each case. For teaching purposes, carcinoma of the breast has been divided into four clinical stages, following the Steinthal (International) classification:

Stage I. Small breast tumor, nonadherent, localized, no palpable glands in the axilla.

Stage II. Breast tumor, usually nonadherent, but with palpable axillary nodes.

Stage III. Fixation of breast tumor or fixed axillary nodes or with metastases beyond axilla.

One knows that it is with stages I and II that the best results are obtained following radical surgery—but probably even some cases which are in stage III with fixed tumor and palpable nodes in the axilla are amenable to radical surgery also.

Not only the stage of the disease will affect the ideas of prognosis, but other factors such as age, location of the tumor, physiologic condition of the patient. As a general rule, carcinoma of the breast will grow much more rapidly in the younger person. Cancer anywhere probably will be more rapid in growth and spread the younger the patient is. If cancer begins in the breast of a pregnant or lactating woman, the results are usually fatal, with the disease growing rapidly and spreading widely in a short time. Carcinomas of the breast which occur in an inner quadrant of the breast usually are considered much more dangerous to the patient than those which occur in the outer quadrants of the breast. This is probably due to the fact that carcinomas of the inner portion of the breast metastasize quickly to the mediastinum. Finally, slowly growing tumors offer a better chance of cure.

It is probably better to rely on the final pathologic report before forming any prognosis. Even if the patient has a tumor fixed to the skin and has palpable nodes in the axilla, as was the case in the patient presented, there is still hope if competent, radical surgery is done.

Pathologist: It is not surprising that this patient has been alive and free of any signs of recurrence of cancer of the breast after six years. Apparently, the lesion was fairly well localized in the breast. Maybe her age had something to do with the rate of growth. It is known that carcinoma of the breast grows much slower in the older individuals than in women in the menopausal age. I prefer to base prognosis on what is found on histologic examination of the actual tumor. I think that the tumor in which there are numerous mitoses, many anaplastic cells with no attempt at glandular or acinar formation is much more malignant than one in which there is an attempt by the cells to form even abortive acini or glands. I believe that the nearer to normal the cells are, the better the prognosis for the patient. Naturally, if the axillary contents show microscopic evidence of tumor cells, the prognosis is considered worse than when no tumor cells are found. I think that the most logical prognosis can be given only from a careful study of the tumor and all the tissues removed at the time of operation. Clinically, and on gross examination, the axillary contents may reveal nothing, yet areas of metastases may be found by microscopic study of sections taken from the axillary tissue.

Points that give justification to a prognosis being considered good might well be repeated:

1. The tumor localized to the breast grossly and microscopically.

2. The remainder of the breast, muscles and axillary glands showing no tumor cells after careful microscopic study.

3. The less anaplastic the cells, the fewer the mitoses and the more normal the appearance of the tumor tissue, the better will be the prognosis, regardless of the type of carcinoma present.

4. Radical mastectomy, which includes removal of the entire breast, the pectoral muscles and their fasciae, and the axillary contents, offers the best chance for survival.

Chairman: We would now like to hear from the radiologist.

Radiologist: I agree with most of the previous comments. I think that adequate radical surgery plus a favorable report from the pathologist should give the patient a fair chance of survival. In those cases in which the tumor is confined to the breast tissue alone, I do not feel that the use of radiation is apt to improve the results obtainable by adequate surgery. I think that the survival rate in these cases, and in those in which the tumor is in the breast and the axillary glands are also enlarged, that adequate radial resection will give good results. These results will probably not be improved upon much by postoperative radiation.

In those cases in which metastasis has already taken place, some arrest in the disease may be accomplished, the aim being palliative rather than curative. Heavy courses of x-ray frequently give relief of pain, especially in bone metastases. Postoperative radiation following radical surgical procedure will offer everything available to the patient toward survival.

Chairman: Summing up this discussion, in giving a logical and truthful prognosis, one should base prognosis on the following points:

1. Age.—Younger individuals, and especially those near or at the menopause, usually have a poorer survival rate than older women.

2. Pregnancy or Lactation.—Carcinoma of the breast during pregnancy or lactation is rapid in growth and usually fatal. Prognosis in these cases is always grave.

3. Location of the Tumor.—Statistics have shown that tumors in an inner quadrant of the breast are more dangerous than those in the outer quadrants.

4. Inflammatory Carcinoma of the Breast.—This is almost always fatal, regardless of the treatment given.

5. Other Types of Carcinoma of the Breast.—The prognosis is best when the tumor is confined to the breast; or if the axillary nodes are enlarged, no tumor cells are found; or when the tumor cells are nearer to normal appearing cells, and attempt to form acini or glands; or when the mitotic count is relatively low.

6. Radical and complete surgery plus postoperative radiation will give the patient all that is available toward a survival.

1325 S. Grand Blvd.

REPORT PAIN-KILLING DRUG TWICE AS POWERFUL AS MORPHINE

A synthetic drug known as I-methadone (letter "I") has twice the pain-killing power of morphine, two Harvard Medical School doctors report following an intensive three-year clinical study of analgesic and narcotic drugs.

The report of Drs. Jane E. Denton and Henry K. Beecher, Boston, was made to the Therapeutic Trials Committee, a standing committee of the American Medical Association's Council on Pharmacy and Chemistry. The results are published in the *Journal of the American Medical Association.*

Discovery of the pain-killing properties of the drug is regarded as important.

"The evaluation of analgesic and narcotic drugs presents difficulties not encountered ordinarily in the appraisal of other therapeutic agents," according to Dr. Walton Van Winkle, Jr., of Chicago, secretary of the Therapeutic Trials Committee.

"The measurement of pain and the action of drugs in alleviating this symptom are difficult to determine by animal experimentation. Clinical evaluation also is difficult because of the inability to estimate pain in human subjects and hence to make accurate quantitative comparisons among various analgesic agents.

"The committee feels that although the procedures described are not yet perfect, they represent a distinct advance in the methods available for quantitative evaluation of the therapeutic efficacy of this class of drugs."

How I-methadone and its related compound I-isomethadone were tested is told by Drs. Denton and Beecher. The clinical study involved 429 postoperative patients and 29 healthy persons. This revealed the double pain-killing power of I-methadone.

L-isomethadone was found to be the equal of morphine in pain-killing power but less nauseating. "L-isomethadone seems to be showing a real difference in nausea rate and is certainly worth further study as a possible replacement for morphine sulfate," the doctors point out.

REPORTS TREATMENT FOR INFERTILITY IS 33 PER CENT SUCCESSFUL

More than a third of a group of women treated for infertility at Johns Hopkins Hospital, Baltimore, have had live babies, according to a doctor from the hospital.

All of the group of 60 women apparently had defects in hormone production or body metabolism, Dr. G. E. Seegar Jones says in the December 17 *Journal of the American Medical Association.*

"Treatment has been directed toward curing the underlying defects, which seemed to be borderline thyroid disturbances, nutritional defects (including vitamin E deficiencies) and, much more rarely, endocrine disturbances, such as adrenal, pancreatic and pituitary adenopathies [diseases of the glands]," Dr. Jones points out.

Treatment consisted of improving the patients' diet and administering vitamin E and hormones, according to the article.

Twenty-one of the women have live babies, Dr. Jones reports.

VICTIMS OF COLON DISEASE ARE LIABLE TO CANCER

Cancer tends to occur as a complication of chronic ulceration in the colon, two doctors from the Mayo Clinic, Rochester, Minn., say.

Writing in the December 3 *Journal of the American Medical Association,* Drs. William G. Sauer and J. Arnold Bargen point out that sufferers from this condition of the colon should have periodic medical examinations.

The doctors report 41 cases in which cancer occurred as complication of the disease, known medically as chronic ulcerative colitis. The cancers occurred both among men and women, with no particular affinity for either sex, the doctors say.

Chronic ulcerative colitis generally had been present about 16 years before cancer was discovered in these patients, according to the article.

Patients with long-standing chronic ulcerative colitis should be checked periodically by the maintenance of a complete history and by physical examination, laboratory tests, and x-ray inspection of the colon, the doctors say. These measures are advisable to ensure the earliest possible detection of malignant developments, they add.

CHRONIC MALARIA SEEN AS CAUSE OF EPILEPTIC SEIZURES

Chronic recurrent malaria may cause epilepsy, according to three doctors of the U. S. Veterans' Administration Center, Los Angeles.

Writing in the December 17 *Journal of the American Medical Association,* Drs. David R. Talbot, Alan C. Elerding and John O. Westwater report that three veterans with recurrent malaria developed seizures characteristic of epilepsy.

Malaria may cause permanent impairment of the gray and white matter of the brain, the doctors point out.

In two of the cases, definite improvement in mental attitude and abnormal behavior occurred after antimalarial treatment, the doctors say. In the other case, however, brain damage was thought to be permanent.

Absence of chills and fever does not rule out the occurrence of malaria in persons who live, or have lived, in the tropics or other malarial areas, according to the article.

Recent progress in treating malaria provides an unprecedented opportunity to halt the process before further damage is done, the doctors say.

Case Reports

DISSOLUTION OF BILIARY CALCULI WITH ETHER

RICHARD L. LAWTON, M.D.
JEFFERSON BARRACKS
AND
CHARLES R. DOYLE, M.D.
ST. LOUIS

ETHEL ETHER has been used in the past for dissolution of biliary calculi; however, this case is presented for the following several reasons: (1) recurrent common duct obstruction; (2) poor risk patient; (3) no demonstrable liver damage from the repeated use of ether instillations, and (4) the presence of inaccessible stones in the intrahephatic ducts. The method used in this instance follows rather closely the technic suggested by B. O. C. Pribram.[1]

From the U. S. Veterans Administration Hospital, Jefferson Barracks.
Published with permission of the Chief Medical Director, Department of Medicine and Surgery, Veterans Administration, who assumes no responsibility for the opinions expressed or conclusions drawn.

REPORT OF CASE

J. C. E., a 52 year old male, was admitted to Veteran's Hospital, Jefferson Barracks, on June 3, 1947, with complaints of epigastric pain, nausea and vomiting, loss of appetite and jaundice of approximately three weeks duration. The stools were clay colored, there was pruritis and the urine was dark with bile. The symptoms present at time of admission to the hospital began with an acute attack of pain in the right upper quadrant which radiated to the right scapular region. Indigestion had been present for one year but there was no history of previous jaundice. When the patient's general condition did not improve, and the icterus index continued to rise from 150 to 210 units, laparotomy was performed on June 12, 1947, through a transverse incision. A large necrotic gallbladder was found filled with a great number of stones varying in size from 1 mm. to 10 mm.

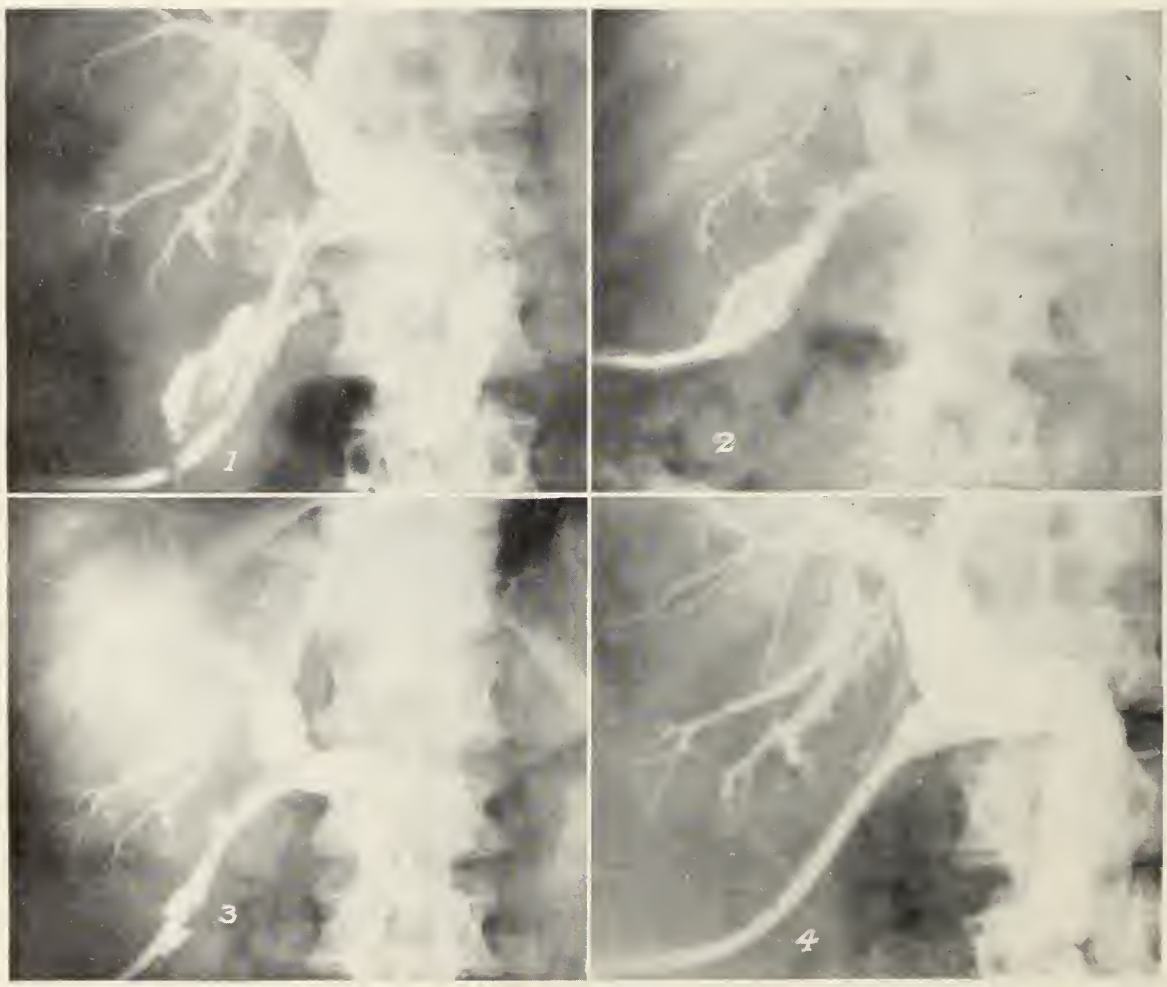


Fig. 1. July 1, 1947. This x-ray was the first one taken postoperatively and showed a complete block near the papilla and some nonopaque calculi. Fig. 2. July 7, 1947. Cholangiogram four days after ether instillations were begun. The Diodrast begins to circumscribe the block. Fig. 3. July 14, 1947. Diodrast almost completely surrounds the block. Fig. 4. July 21, 1947. After twelve days of treatment the block is surrounded by the Diodrast and there is a small amount distal to the block.

The common duct and right and left hepatic ducts also were packed with stones. The gallbladder was removed and the common and hepatic ducts explored. Before all of the stones could be removed from the duct system by forceps, scoop and irrigation with saline solution, the patient's condition became unstable and it was deemed prudent to terminate the operative procedure, although the common duct was still blocked by stones.

Examination and analysis of the stones postoperatively revealed them to be almost pure cholesterin, and it was noted that a 2 mm. sized stone would completely dissolve in ether after three minutes. Postoperative cholangiogram (two weeks) revealed absolute blockage of the common duct near the ampulla (fig. 1). Other nonopaque areas, interpreted as stones, were visualized in the duct system and there was marked dilatation of the common duct and the hepatic radicals.

On July 3, 1947, the instillation of ether into the T-tube was begun, the following technic being used. The patient was given gr. 1-100 of nitroglycerin sublingually. The mouth of the T-tube was cleansed, the excess bile drawn off with a syringe and the duct system irrigated with 20 cc. of procaine solution. Ether was introduced slowly into the T-tube using from 3 to 6 cc. each time. The tube was not clamped off at any time during the procedure because of excess pressure caused by vaporization of the ether. At times the patient would notice epigastric or substernal distress. Following the instillation of ether, 5 cc. of mineral oil was placed into the T-tube and the tube clamped off for several hours. This procedure was carried out fifteen times in the next twenty-one days until July 24, 1947, the patient experienced a dizzy sensation, taste of ether and there was audible peristalsis. Immediate fluoroscopy was done with Diodrast instillation which revealed prompt passage of the opaque medium into the duodenum. On August 1, 1947, the patient was discharged with the T-tube clamped shut.

The patient returned in six days complaining of epigastric pain, weakness and malaise. He was toxic, and his condition was diagnosed as cholangitis secondary to biliary obstruction. Bile from the T-tube was dark and foul smelling. His condition was much improved the morning after admission, following bile drainage and penicillin therapy. Cholangiograms again showed absolute block of the common duct near the papilla (fig. 6). Ether instillations were started again on August 11, 1947, and after seven injections the biliary tree again was free of obstruction (figs. 6, 7, 8). The patient was discharged to return at intervals for check-up. On December 18, 1947, the T-tube was removed, about six



Fig. 5. July 24, 1947. Block eliminated after fourteen days of treatment. Fig. 6. August 7, 1947. Recurrence of block at papilla. Fig. 7. August 13, 1947. After two days of ether beginning dissolution of stone is evident. Fig. 8. September 2, 1947. Obstruction no longer present.

months after it had been placed into the common duct. On March 23, 1948, the patient was admitted to the hospital for repair of a small inguinal hernia. There were no complaints referrable to the biliary system at that time.

Repeated liver function tests actually showed progressive improvement of function. The sediment from centrifuged bile was examined microscopically frequently, but no liver or ductal cells could be identified. The serial roentgenograms presented illustrate the dissolution of the stones, fragments of which, at times, were forcibly ejected from the T-tube following ether instillation. In this case there was a history of coronary insufficiency, and the substernal pain elicited occasionally during the ether instillations was, according to the patient, similar to the angina associated with effort. An electrocardiogram taken simultaneously with paroxysm of substernal pain showed no abnormality.

SUMMARY

A case of cholelithiasis and choledochlithiasis is presented, with the technic of dissolution of cholesterin stones remaining in the biliary system.

CONCLUSIONS

1. Repeated ether instillations are warranted and seemingly free from complications.
2. This procedure is of value in certain patients.
3. Cholesterin stones in intrahepatic ducts, inaccessible to surgery, can be dissolved.

1. Pribram, B. O. C.: New Methods in Gall-Stone Surgery, Surg., Gynec. & Obst. 60:55, 1935.

CYANOSIS IN AN INFANT CAUSED BY NITRATES IN WELL WATER

W. DEWARD CHUTE, M.D.
MOBERLY, MISSOURI

Methemoglobinemia following ingestion of well water containing nitrates and producing cyanosis in infants was first reported by Comly[1]. A sufficient number of case reports have followed to indicate the condition is not uncommon. Weart[2, 3] points out the wide geographical distribution of reported cases and of associated high nitrate waters. He states that there were thiry-three cases of this syndrome with five fatalities in Illinois in one year. The majority of the wells implicated have been of the shallow dug variety. However, there apparently is no correlation between the sanitary quality of the water and the amount of nitrate it may contain. The source of the nitrate probably is the organic nitrogen in the soil. The nitrates produced are soluble and move with the water in the recharge of the well.

Methemoglobinemia following the use of a high nitrate water in infant feeding results from the reduction of the nitrate to nitrite by bacterial action within the gastrointestinal tract. Nitrite, on absorption into the blood, converts a portion of the hemoglobin to methemoglobin[4]. If the content of methemoglobin rises to a value of more than from 2.5 to 3.0 grams per 100 ml. of blood, the blood becomes chocolate colored and a "blue baby" results, with a cyanosis variously termed slate-gray, dusky or black.

Cornblath and Hartmann[5] found that only infants who have a gastric juice pH higher than 4.0 and nitrate reducing bacteria in the upper gastrointestinal tract develop methemoglobinemia from oral ingestion of water containing nitrate. The gastric juice pH is commonly higher than 4.0 in early infancy. It is noted that the majority of cases of well water methemoglobinemia are under 2 months of age.

CASE REPORT

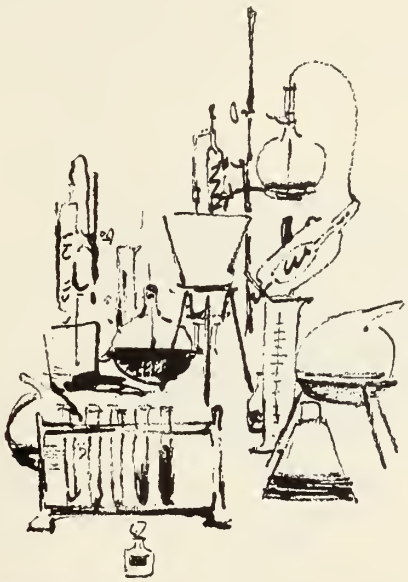
This 21 day old infant, K. L. W., was referred to Woodland Hospital from her farm home in North Central Missouri on July 19, 1949, with the complaints of blueness and difficulty in breathing. The infant had been well since birth. The mother noted on July 16, 1949, that the infant appeared mottled. This mottling disappeared in a few hours. The baby did not appear ill. On the morning of July 19, 1949, about thirty minutes after the 10:00 a.m. feeding, the family noted the baby was blue. Within an hour, the baby was dark, almost black, and she began to gasp for breath. There had been no episode of coughing nor other evidence of distress. The family took the baby to a nearby physician who referred her to the hospital. The past history revealed a normal pregnancy, uneventful labor and spontaneous delivery. Feedings had been standard evaporated milk formula. There was one sibling aged 2 years, who was well. The maternal grandmother died of tuberculosis, but the parents were well.

Physical examination on admission to the hospital revealed a well developed, moderately well nourished, well hydrated female infant weighing 7 pounds, 14 ounces (3,572 gm.). The skin and all mucous membranes showed the marked dusky cyanosis which has been described as slate gray in color. Respirations were thirty-six per minute, although the "gasping like a fish out of water" described by the parents was not observed. The lung fields were clear to auscultation and percussion. The heart rate was 220 per minute; no murmurs were heard. The remainder of the physical examination disclosed no abnormal findings. The admitting diagnosis was methemoglobinemia and well water used in formula was suspected. Oxygen was administered and ascorbic acid started. A complete blood count was normal; the blood was noted to be chocolate brown in color. Urinalysis showed urine to be normal. A roentgenogram of the chest revealed the cardiac shadow to be within normal limits; there was no evidence of atelectasis, pleural effusion nor consolidation; the thymus gland was moderately enlarged. An electrocardiogram was within normal limits of variability.

On oxygen continuously per incubator and ascorbic acid 100 mg. subcutaneously every hour, the infant gradually improved. After a period of five hours, the color was good and the respirations and pulse rate normal, so the oxygen was discontinued. A total of 800 mg. ascorbic acid was given. The infant was dismissed on July 21, 1949, and has remained asymptomatic. No x-ray therapy was ordered for the thymus. The parents were requested to use only city water from an approved source for the infant's formula and drinking water for all the family, pending investigation of the well.

Analysis of the well water performed by the Division of Health of Missouri, Bureau of Public Health Engineering, Jefferson City, was reported August 9, 1949, as

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positive for B. coli and the nitrate content was 220 parts per million. The Division of Health recommends that water should not be used for infant formulas if it has a nitrate content above 10 parts per million.

COMMENT ON CASE

Most observers remark the lack of cardiac and respiratory symptoms and signs compared to the depth of the cyanosis. This was demonstrated in three patients admitted to Woodland Hospital during the last year. All three were infants 10 days to 4 months of age, all deeply cyanotic, all otherwise asymptomatic, all had been on well water formulas, all had chocolate colored blood on smear and all responded promptly to ascorbic acid. However, the fourth admission whose case report is given was acutely ill, dyspneic with rapid respirations and pulse.

Comly[1], Weart[2, 3], Chapin[6], Goluboff[7], Medovy[8], Cornblath and Hartmann[5], Scott[9] and Donahoe[10] recommend methylene blue, sterilized and suited to intravenous use, 1 to 2 mg. per kilogram. Goluboff[7] states that from 10 to 20 mg. methylene blue per kilogram may be given orally in 5 per cent dextrose every four hours. Medovy[8] mentions the successful use of ascorbic acid. Woolley[11] states that methylene blue was long the reducing agent of choice, but ascorbic acid has come into favor as a more readily available antidote. It is possibly a little slower in action than methylene blue, but is quite reliable. Treatment of a case at the Children's Hospital of Michigan consisted of 500 mg. of ascorbic acid intramuscularly and repeated in four hours[11].

Methylene blue is tetramethylthionine chloride. It can be reduced to colorless or leuko form, and thus methylene blue and its reduction products comprise a reversible oxidation reduction system. Ascorbic acid is a powerful reducing agent. Reduction of methemoglobin is the desired action. These agents are indicated alone or combined in the treatment of methemoglobinemia caused by sulfanilamide, cyanides, nitrates, nitrites, chlorates and the nitrobenzene compounds.

SUMMARY AND CONCLUSIONS

1. A case of well water methemoglobinemia in a 21 day old infant is reported.

2. Ascorbic acid intramuscularly or subcutaneously in large amounts furnishes effective treatment.

3. Analysis of the rural water supply should be made before the new baby is brought home.

Woodland Hospital and Clinic.

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ANTIBIOTIC DRUG REPORTED EFFECTIVE FOR WHOOPING COUGH AND VENEREAL DISEASE

Aureomycin, the golden-colored antibiotic drug, is effective against whooping cough and lymphogranuloma venereum, a minor venereal disease, two Minneapolis doctors reported recently.

Recent experimental and clinical studies indicate that aureomycin is effective in whooping cough, Drs. Wesley W. Spink and Ellard M. Yow of the University of Minnesota Medical School said in the December 3 *Journal of the American Medical Association.*

The ulcerative venereal disease also responds favorably to treatment with aureomycin, they added.

Aureomycin appears to be of little or no value in chickenpox and mumps, however, the doctors found.

AUREOMYCIN PRODUCES QUICK RELIEF IN SHINGLES

Four cases in which aureomycin produced quick relief from shingles are reported by two Newport News, Va., doctors in a current issue of the *Journal of the American Medical Association.*

All four patients experienced relief of pain 24 hours after the antibiotic drug was administered, say Drs. M. L. Binder and L. E. Stubbs.

In two cases, the rash associated with the disease disappeared in five days. In the remaining two cases, the rash disappeared in four and seven days, respectively.

"The treatment of herpes zoster [shingles] at its best has been unsatisfactory in the past," the doctors point out. "The multitude of therapeutic agents recommended is an indication of the lack of efficacy of any one of these agents in the majority of cases."

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PRESIDENT'S PAGE

The House of Delegates of the American Medical Association, meeting in Washington, D. C., December 6 to 8, 1949, adopted dues of $25.00 for active members of the American Medical Association for the year 1950. The dues are to be collected by the county medical societies in accordance with the usual custom of collecting dues.



The funds collected will be used to continue the effective educational campaign which has been conducted by the Association in 1949 to inform the public of the many advantages of the voluntary system of medical practice as it now exists in the United States.

Detailed information regarding the collection will be sent to county medical societies at an early date.

Wallis Smith.

Editorials

THE JOURNAL

The January issue of THE JOURNAL appears with a new cover and contents to match.

The editorial policy has been formulated to emphasize the educational aspects of THE JOURNAL, both scientific and organizational.

THE JOURNAL contains a Postgraduate Review designed to bring the busy practitioner up to date on various aspects of medicine, surgery, obstetrics and gynecology. The Editorial Board is anxious to make this a worth while feature and urges readers to send in topics which can be covered in this section.

The section on Case Reports is provided to give every physician an opportunity to present cases which have come under his observation which may be interesting and instructive to his fellow practitioners.

Activities of the Association, as well as pertinent facts concerning medical legislation and economics, also will occupy a prominent place.

It is the earnest hope of the Editor and the Editorial Board that the members of the Missouri State Medical Association will take an acute interest in THE JOURNAL and that their correspondence and suggestions, as well as contributions, will help to elevate THE JOURNAL to an outstanding position in the ranks of medical publications.

R. O. M.

ADVANCES IN 1949

The editorial staff wishes all its readers a happy and profitable New Year and hopes they enjoyed a Merry Christmas.

The start of a New Year leads one to glance back over the old year to see what went on.

New diagnostic tests for cancer, including those which deal with chemical changes produced in the body as well as those concerned with exfoliative cytology, lead one to believe that eventually a reliable test will be developed and the control or eradication of cancer then will be feasible.

The therapy of malignant disease has received needed stimulation through the discoveries of newer forms of radiation therapy—the use of radio active isotopes and a few promising chemicals such as urethane, nitrogen mustard and the folic acid antagonists. These are only promising leads which may lead to greater things in the future.

The surgical approach to cancer has been and is being aided by the increasing knowledge of fluid and electrolyte balance and the remarkable advances in the physiology of anesthesia. All these make surgery less a risk and make the necessarily radical procedures of cancer surgery possible.

In antibiotics, aureomycin and chloromycetin have been added to the growing list of drugs which are useful in infectious diseases—amebiasis, certain rickettsial diseases, as well as brucella infections, apparently respond well to one or more of the new antibiotics.

The viral diseases have not responded well to any antibiotic therapy, but the cautious reports on the use of aureomycin in some viral diseases may be looked upon with promise.

In antihistaminics, during the year the number of compounds have increased, and selection becomes difficult. However, they seem to hold great promise in allergic states and have continued to prove satisfactory in many cases of urticaria, allergic rhinitis and dermatosis. The current enthusiasm for these drugs as a means of preventing or curing "colds" must be tempered with cautious and careful observation. The use of antihistaminics in acute coryza is so new and many investigators with wide experience seem to be somewhat skeptical.

The use of anticoagulants continued during the year, but there seems to be slightly less enthusiasm as far as results are concerned. So far as cardiology is concerned, the spotlight during the year centered primarily on the surgical advances in the handling of congenital lesions. Reports of successful operation increase, and we wait with considerable interest the long term follow-up of these patients.

These represent but a few of the interesting and promising medical developments during the last year. The renewed interest in diabetes, arthritis and geriatrics indicates a healthy thinking in the profession.

All in all it has been a good year, which has yielded prime results to the person most concerned—the patient.

FEDERAL WITHHOLDING AND OLD AGE ASSISTANCE TAXES

A new procedure will apply for making monthly deposits of taxes on wages paid on or after January 1, 1950. The procedure will apply both to income tax withheld from wages and to the employer's tax and employee's tax under the Federal Insurance Contributions Act.

The employer will be required to make monthly deposits of the amounts withheld by him as an employer with the Federal Reserve Bank in his district. Federal Reserve Banks are located in St. Louis and Kansas City. If one prefers, he may send or take the necessary form, with remittance, to a commercial bank which has been authorized to accept such deposits for transmittal to the Federal Reserve Bank.

For further information, ask the Collector of Internal Revenue in St. Louis or Kansas City to provide Form 16-60108-1.

This new method applies only to wages paid on or after January 1, 1950.

Organization and Economics

NEWS NOTES

Physicians who have appeared recently on programs of component medical societies under the auspices of the Committee on Postgraduate Course follow:

Julius Jensen, M.D., St. Louis, spoke before an evening dinner meeting of the Phelps-Crawford-Dent-Pulaski Counties Medical Society at Newburg on "Some Critical Remarks on the Clinical Use of Certain Cardiac Drugs."

Alfred J. Cone, M.D., St. Louis, spoke before a meeting of the St. Francois-Iron-Madison-Washington-Reynolds Counties Medical Society at Farmington on "Diseases of the Esophagus."

John H. Mayer, Jr., M.D., Kansas City, spoke at a joint dinner meeting of ten county medical societies at Chillicothe on "The Differential Diagnosis of Some Important Chest Conditions Encountered in General Practice."

Robert J. Mueller, M.D., St. Louis, spoke at a joint dinner meeting of five county medical societies at Wentzville on "Psychosomatic Medicine."

Albert C. Stutsman, M.D., St. Louis, spoke before a meeting of the St. Francois-Iron-Madison-Washington-Reynolds Counties Medical Society at Farmington on "Diseases of the Ear, Nose, and Throat of Common Interest."

James F. Dowd, M.D., St. Louis, and Elmer A. Jasper, D.D.S., Professor of Oral Medicine, St. Louis University School of Dentistry, discussed, before an evening dinner meeting of the Phelps-Crawford-Dent-Pulaski Counties Medical Society at Rolla, "Diagnosis and Treatment of Oral Conditions of Interest to Both Dentists and Physicians."

E. E. Glenn, M.D., Springfield, spoke at the meeting of the Missouri Hospital Association in St. Louis on November 17. His subject was "Care of Tubercular Patients in General Hospitals."

Robert Mueller, M.D., St. Louis, spoke before the Southside Lions Club of St. Louis on November 10 on "Is Socialized Medicine the Answer?"

Frederick A. Jostes, M.D., St. Louis, presented a paper before the Massachusetts Society of Examining Physicians at a dinner meeting at the Harvard Club in Boston on November 16. His subject was "Factors Related to the Etiology and Successful Treatment of Back Pain."

Carl R. Ferris, M.D., Kansas City, spoke on "Our Mutual Responsibilities" at a meeting of the Association of Nursing Homes in Kansas City on November 15.

Horace F. Flanders, M.D., Kansas City, addressed members of the Kansas City chapter of the Sojourners on November 10 in Kansas City on "National Compulsory Sickness Insurance."

John Zahorsky, M.D., Steelville, was granted an emeritus fellowship by the American Academy of Pediatrics at a recent meeting of the Academy held in San Francisco.

Vincent T. Williams, M.D., Kansas City, spoke before the Lions Club of Excelsior Springs on November 16 on "Compulsory Health Insurance."

Albert N. Lemoine, Jr., M.D., Kansas City, was elected president of the Kansas City Association for the Blind at a meeting on November 16.

Russell J. Crider, M.D., St. Charles, spoke before the St. Charles Rotary Club on October 28 on "Socialized Medicine."

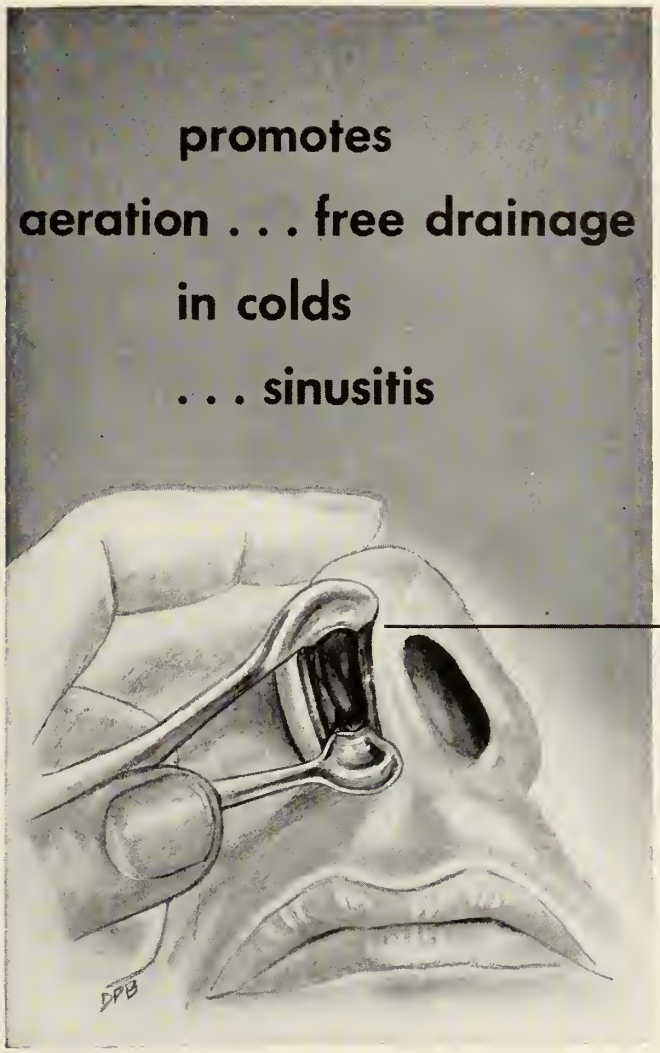
The Missouri Health Council will hold a one day meeting at the Governor Hotel, Jefferson City, on January 25, beginning at 11:00 a. m. The program will be presented by representatives of the State Department of Education and will include discussion of what the department is doing regarding health of school children, what they wish to do and difficulties they are encountering.

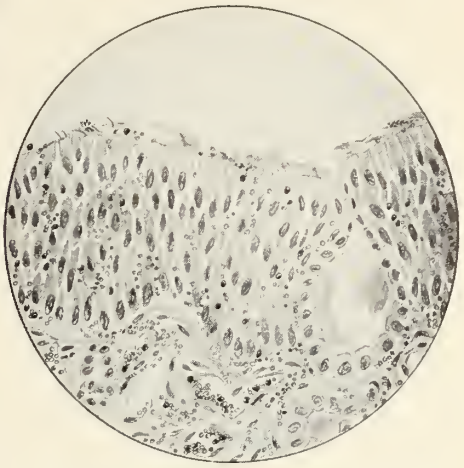
Andy Hall, Sr., M.D., Mount Vernon, Illinois, was named "outstanding general practitioner of the year" by the American Medical Association. Dr. Hall is the father of Andy Hall, Jr., M.D., St. Louis.

The Mayo Clinic, Rochester, has announced the appointment of Morris Fishbein, M.D., Chicago, until the Interim Session of the American Medical Association Editor of the journal of that association, as a contributing editor of "Postgraduate Medicine."

Herbert J. Rinkel, M.D., Kansas City, will discuss "Allergy in France" at the meeting of the American College of Allergists which will meet in St. Louis, January 15 through 18.

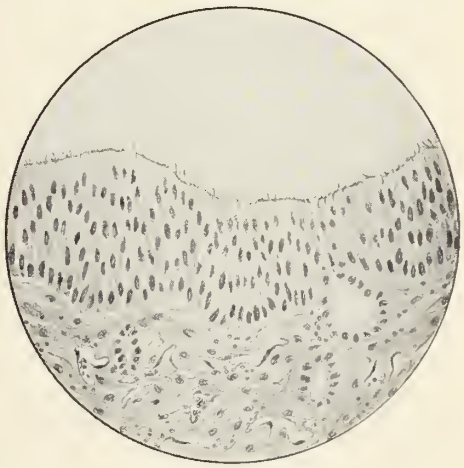
Sherwood Moore, M.D., St. Louis, was elected vice president of the American Cancer Society at an annual meeting of the organization in New York October 27 to 30, 1949.





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MUSINGS OF THE FIELD SECRETARY

Among localities in out-state Missouri seeking resident physicians are two in particular which might be well considered by any M. D. in general practice planning location or relocation. The following information, minus name of town, was received from a prominent citizen living in one of the aforementioned places: The town calls itself "The Apple Capital of Missouri," which was once true but now questionable. Surrounding is good country in which dairying predominates. There is a garment factory employing some sixty women and a cold storage and vinegar plant now employing some thirty men. Other industries are mostly seasonal. The people of this community are average in every way, however, it does have a heavy sprinkling of college and university graduates which may be considered an asset or a liability depending on the eyes through which it is seen. There are many businesses and social clubs in this town of 1,200 population in which a strong Lions Club acts as a Chamber of Commerce. A main highway runs through the town and approved hospital facilities are but six miles distant. There are three churches and one in the throes of being born. In addition there is a Home for the Aged, not a charity institution, with about forty old folks and with a vastly expanding program. The schools are modern, consolidated and fully accredited. The town has paved streets and a new sewer system. There are spacious office quarters awaiting a doctor and living quarters are readily available. Rents are low compared to the cities. At present there is no resident physician in the town and the need for such service is great.

The second locality like the first has no resident physician following the recent "passing to greater rewards" of the town's much beloved family doctor. This town of some 1,000 people is located in a rich dairy farming area and close to the sportsman's paradise of Missouri, represents an attractive medical location as well as living environment. If you are interested, contact the State Association headquarters office.

DEATHS

Holtgrewe, Frederick W., M.D., St. Louis, a graduate of Washington University School of Medicine, 1889; Fellow of the American Medical Association; member of the St. Louis Medical Society; aged 84; died October 3.

Weinsberg, Charles H., M.D., St. Louis, a graduate of the St. Louis College of Physicians and Surgeons, 1889; Fellow of the American Medical Association; honor member of the St. Louis Medical Society; aged 83; died October 22.

Becker, George William, M.D., St. Louis, a graduate of St. Louis University School of Medicine, 1904; Fellow of the American Medical Association; member of the St. Louis Medical Society; aged 71; died October 26.

Bosse, Edwin H., M.D., St. Louis, a graduate of Washington University School of Medicine, 1886; Fellow of the American Medical Association; honor member of the St. Louis Medical Society; aged 82; died November 6.

Tate, Prentiss S., M.D., Fulton, a graduate of St. Louis University School of Medicine, 1902; Fellow of the American Medical Association; honor member of the Callaway County Medical Society; aged 72; died November 11.

Howard, Joseph William, M.D., Kansas City, a graduate of the University Medical College of Kansas City, 1903; Fellow of the American Medical Association; honor member of the Jackson County Medical Society; aged 80; died November 19.

Neunlist, Percy C., M.D., Old Monroe, a graduate of St. Louis College of Physicians and Surgeons, 1914; member of the Lincoln County Medical Society; aged 61; died November 21.

Newman, George W., M.D., Cassville, a graduate of the University of Minnesota Medical School, 1933; member of the Ozarks County Medical Society; aged 49; died November 28.

MISSOURI STATE MEDICAL ASSOCIATION PROGRAM

100th Anniversary Session, Hotel Jefferson, St. Louis

The 100th Anniversary of the Association will be celebrated at the 92nd Annual Session to be held at Hotel Jefferson, St. Louis, March 26, 27, 28, 29, 1950.

PROGRAM

Monday, March 27, 1950, 8:30 a. m., Gold Room, Hotel Jefferson

8:30 a. m.	Color Television: Surgical Subjects.
10:30 a. m.	Intermission to View Exhibits.
11:00 a. m.	Diabetes (definite subject to come), J. W. Conn, M.D., Ann Arbor, Mich.
11:30 a. m.	Bronchial Obstruction Due to Endobronchial Lesions, Paul H. Holinger, M.D., Chicago.
1:30 p. m.	Color Television: Medical Subjects.
3:30 p. m.	Intermission to View Exhibits.
4:00 p. m.	House of Delegates.
7:30 p. m.	Annual Banquet in Honor of Past Presidents, Mr. Alex Dreier, Chicago, speaker.

Tuesday, March 28, 1950, 8:30 a. m., Gold Room, Hotel Jefferson

8:30 a. m.	Color Television: Surgical Subjects.
10:30 a. m.	Intermission to View Exhibits.
11:00 a. m.	Prolonged Labor, Herbert E. Schmitz, M.D., Chicago.
1:30 p. m.	Color Television: Medical Subjects.
3:30 p. m.	Intermission to View Exhibits.
4:00 p. m.	Use and Abuse of Antibiotics Relating to Pediatrics, Panel Discussion.

Wednesday, March 29, 1950, 8:30 a. m., Gold Room, Hotel Jefferson

8:30 a. m.	Color Television: Surgical Subjects.
10:30 a. m.	Intermission to View Exhibits.
11:00 a. m.	Anesthesiology (definite subject to come), R. Charles Adams, M.D., Rochester, Minn.
11:30 a. m.	Surgical Lesions of the Stomach, Warren H. Cole, M.D., Chicago.
1:30 p. m.	House of Delegates.

MISSOURI SOCIETY OF MEDICAL TECHNOLOGISTS

Practical courses and lectures for technologists, office nurses and laboratory workers will be presented at the 100th Anniversary Session of the Association in St. Louis, March 26 to 29. The courses and lectures are being arranged by a special committee of the Association in cooperation with the Missouri Society of Medical Technologists which will be holding its third annual session at the time of the Association meeting.

The program being arranged is of a practical nature including demonstrations of common as well as complicated laboratory technics. Also included will be problem clinics and at these technicians or office nurses may wish to have a procedure demonstrated which has been causing trouble.

Membership in the Missouri Society of Medical Technologists is not a requirement for admission. Doctors are urged to tell their technicians or office nurses about the program or, even better, urge that they attend.

Problem clinics will be held each day at 11:00 a. m. and 3:30 p. m. Addresses will be: "The Preparation of Protein Free Filtrates," Miss Elizabeth M. Eickholt, Jefferson Barracks; "The Frog Pregnancy Test," Miss Adela Martinez Guajardo, St. Louis; "Medical Technologists: Their Training," Sister M. Alcuin, Duluth, Minn.; "Routine Urinalysis," Miss Frances Murry, St. Louis; "Liver Function Tests With Particular Emphasis on the Cephalin Cholesterol Flocculation, the Thymol Turbidity and the Bromsulphalein Tests," Miss Marjorie Smith, Kansas City; "Basal Metabolic Rate," Miss Elizabeth Houghton, St. Louis; "Slide Demonstration of Cells—Normal Blood, Pathologic Peripheral Blood and Bone Marrow Studies," Sister M. Leo Rita, St. Louis; "Concentration and Staining of Sputum in the Detection of the Tubercle Bacillus," Miss Alice Timpe, Kansas City; "The Iodometric Determination of Serum Diastase," Miss Hildegarde Kramer, St. Louis; "Routine Hemotoxylin and Eosin Stains and Frozen Section Stains," Mrs. Chrystal Hamontre Clinesmith, Kansas City; "Plasma Protein Determinations—An Analysis of Several Methods," Miss Mary Elizabeth Wesley, St. Louis.

FIFTH NATIONAL RURAL HEALTH CONFERENCE

The American Medical Association, through its Committee on Rural Health, in cooperation with the national farm organizations, is sponsoring the fifth annual National Conference on Rural Health, to be held in Kansas City, February 3 and 4. For the last four years this conference has been held in Chicago. The conference brings together approximately seven hundred leaders of lay and professional groups that are vitally interested in health as it pertains to agriculture, medicine and its related subjects.

The theme for the general sessions of the Conference this year is "Let's Do Something About It." Rural medical facilities at the local level, relation of agricultural extension service to rural health problems, community responsibility for health services, methods of prepayment for health services in rural areas and the responsibility of the medical schools in the rural health program will be the general topics.

Formal talks will be presented on the first morning. The afternoon meeting will be broken up into discussion groups and summary reports by the chairmen of the groups will be given the following morning.

Most of the sessions of the conference will be held in the Municipal Auditorium beginning at 9:00 a. m. each morning.

Plans are being completed for an afternoon and evening meeting on February 2 of members of the various Rural Health Committees of state medical associations with the American Medical Association Committee on Rural Health.

THE COUNCIL

The Council met at the Sheraton Hotel, St. Louis, on November 26 and 27, 1949, with J. W. Thompson, M.D., St. Louis, Chairman, and E. C. Bohrer, M.D., West Plains, Vice Chairman, presiding. Those present were Drs. Donald M. Dowell, Chillicothe; W. F. Francka, Hannibal; J. W. Thompson, St. Louis; Otto W. Koch, Clayton; J. F. Jolley, Mexico; C. Edgar Virden, Kansas City; W. S. Sewell, Springfield; E. C. Bohrer, West Plains; Frank W. Hall, Cape Girardeau; Wallis Smith, Springfield; W. A. Bloom, Fayette; C. E. Hyndman, St. Louis; H. E. Petersen, St. Joseph; F. T. H'Doubler, Springfield; R. E. Schlueter, St. Louis; Howard B. Goodrich, Hannibal; W. L. Allee, Eldon; R. O. Muether, St. Louis; R. E. Duncan, Kansas City; Carl F. Vohs, St. Louis; Armand D. Fries, St. Louis; Robert Mueller, St. Louis; B. L. Sinner, St. Louis; A. N. Arneson, St. Louis; Mr. Lawrence Bradley, Kennett; Mr. J. W. Foristel, Washington, D. C.; Mr. Lemoine Skinner, St. Louis; Mr. W. H. Bartleson, Kansas City; Mr. D. E. Caywood, Springfield; Mr. Raymond McIntyre, St. Louis; Mr. T. R. O'Brien, St. Louis.

Committee of the Whole

There lacking a quorum at the beginning of the session, upon motion of Dr. Virden, those present constituted themselves a committee of the whole and proceeded with business. Upon a quorum being present, upon motion of Dr. Virden, the committee was dismissed and the Council was declared in session.

State Cancer Hospital

A letter to Dr. Smith from Dr. Johnson of the Ellis Fischel State Cancer Hospital concerning the difficulty of obtaining men for the medical staff because of the two year Missouri residency law was discussed. It was pointed out that a bill concerning the merit system which is pending will take care of this situation.

Psychology Examining Board

A letter to Dr. Smith concerning the setting up of an examining board for psychology was presented. After discussion this was referred to the Committee on Mental Health upon motion of Dr. Smith.

Chicago Meetings

Mr. O'Brien reported on the Secretary-Editor's conference in Chicago which was followed by a Public Relations Conference of state associations.

Mr. Lawrence Bradley

Mr. Lawrence Bradley, Kennett, was introduced and discussed the suit brought by the board of the Audrain County Hospital and answered questions. He stated that the time of December 12 which was set for Judge



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Blair to hear the case had been postponed and another date will be set.

Banquet Speaker

It was announced that Mr. Alex Dreier would be the speaker at the Annual Banquet in honor of Past Presidents.

Alcoholism as Disease

A letter from Dr. S. D. Smith, Columbia, concerning the question of alcoholism being a disease was discussed and upon motion of Dr. Virden, this was referred to Dr. Smith, Dr. Duncan and Mr. O'Brien for answer.

Council on Medical Service Plans

A letter from the Council on Medical Service of the American Medical Association announcing a meeting in Washington, D.C., on December 4 was announced. It was suggested that Dr. James R. McVay, Kansas City, represent the Association at this meeting.

Cancer Society Letter

Mr. O'Brien read a letter from the Cancer Society requesting the Association to send a letter to all members of the Association announcing that "The Cancer Bulletin" will be sent to the members during the coming year. The Bulletin had been approved for distribution by the Association's Committee on Cancer.

Better Business Bureau

Upon motion of Dr. Virden it was decided to retain membership for the Association in the Better Business Bureau.

Treasurer's Report

Dr. Hyndman presented the report on the finances of the Association and, upon motion, the report was accepted.

Budget Committee

The Chairman appointed the Budget Committee as follows: Dr. Hyndman, chairman; Dr. Virden; Dr. Francka.

A.M.A. Assessment

Mr. O'Brien reported that 73 per cent of the members of the Association had paid the assessment, the various Councilor Districts showing percentages of 64 for First District; 62 per cent for Second District; 83 per cent for Third District; 66 per cent for Fourth District; 66 per cent for Fifth District; 56 per cent for Sixth District; 84 per cent for Seventh District; 80 per cent for Eighth District; 55 per cent for Ninth District, and 67 per cent for Tenth District.

Field Secretary's Report

Mr. McIntyre reported on component society and councilor district meetings held since the last Council meeting together with other meetings in which the Association had taken part, such as Committee on Tuberculosis sponsoring a meeting with other groups with the same interests, the Missouri Health Council, American Medical Association's Conference on Physicians and Schools, Missouri Academy of General Practice, Greene County Health Forum, Missouri Hospital Association and appearance of physicians before lay groups. He reported that sixty physicians had located in rural areas recently bringing the total to 351 since the end of the war.

Annual Session Program

Dr. Arneson gave a progress report on the scientific program for the Annual Session, showing that the program is complete with exception of a few details.

Sound Films

Sound films were discussed and it was the concensus that there was a place for them in medical meetings but that they did not in any way take the place of a speaker on a medical subject.

Legislative Committee of A.M.A.

A letter was read from the Arkansas Association which told of a proposed resolution to be introduced in the House of Delegates of the A.M.A. National legislation as pertains to medicine was discussed but no action was taken.

Editorial Board

Dr. Muether reported on The Journal and announced the Editorial Board which the Council had approved. With additions which were suggested by the Council, the personnel of the Board follows: Drs. John P. Ferguson, Springfield; Trawick H. Stubbs and John J. Modlin, Columbia; Victor B. Buhler, A. Lloyd Stockwell, F. Garrett Pipkin, Claude J. Hunt, F. Stanley Morest, H. F. Flanders, Ralph R. Coffey, and Kenneth C. Hollweg, Kansas City; Joseph M. Krebs, H. Ewing Wachter, Robert Elman, B. L. Sinner, Edmund A. Smolik, Cyril M. MacBryde, William A. Knight, Melvin O. Casberg and Robert Moore, St. Louis.

Upon motion of Dr. Virden, the Editorial Board was approved to be subject to yearly appointment by the Editor and Committee on Publication with approval of the Council.

Public Relations

Dr. Fries gave a progress report on the work of the Committee on Public Policy and Public Relations and urged that Councilors make appointments to the committees and encourage county societies in their districts to make their appointments.

Grievance Committees

Dr. Smith told the Council of the plan of several state associations of setting a grievance committee to hear and handle complaints against individual physicians. No action was taken.

Community Health League

The Community Health League was discussed and the Council continued its approval of the league.

Handbook

Dr. Petersen reported that the Handbook was progressing and would be ready for distribution at the Annual Session.

Budget

The following budget was presented by the Budget Committee and on motion of Dr. Hyndman was adopted:

Salaries	$26,800.00
Journal Expense	18,000.00
Postage & Express	600.00
Printing & Stationery	1,800.00
Travel, Executive Sec'y	900.00
Travel, Field Sec'y	1,500.00
Telephone & Telegraph	1,200.00
Office Rent & Light	2,800.00
Meetings & Com. Expense	12,000.00
Defense	500.00
Postgraduate	700.00
Woman's Auxiliary	500.00

Public Relations	4,500.00
Insurance Annuity	950.00
Misc. Gen. Expense	1,500.00
Furniture & Fixtures	250.00
Social Security Tax	350.00
Total	$74,850.00

Public Relations Consultant

A letter from Mr. Lemoine Skinner proposing that he be retained by the Association at a fee of $250 a month and stipulating what this would cover was presented. After discussion by Drs. Petersen, Virden, Duncan, Thompson, Francka and Bloom, it was decided to employ Mr. Skinner on a retainer basis beginning January 1, 1950.

Blue Cross

On motion of Dr. Smith, after presentation by Dr. Thompson, the following resolution was adopted:

Resolved, That the Council of the Missouri State Medical Association go on record as opposing any change in the ratio of representation on the Board of Trustees of the St. Louis Blue Cross Plan which is now constituted to give majority representation to the general public.

Committee on Medical Economics

Dr. Vohs, Chairman, Committee on Medical Economics, reported the action of the committee in approving in principle the contributory agreement of the Associated Medical Care Plans (Blue Shield) and plans to set up a national enrollment agency for the plans.

By-Laws of County Societies

A letter from a county medical society regarding the conformity of the society by-laws to the Association by-laws was read. Dr. Petersen pointed out that the Constitution of the Association required that those of county societies conform but that acceptance of members was constitutionally the prerogative of the county society. Upon motion of Dr. Virden, the secretary was instructed to answer the letter with this data.

Approval of Hospitals

A letter was read concerning the changing of the approval of hospitals without prior contact by the Council on Medical Education and Hospitals of the A.M.A. With Dr. Bohrer presiding the following resolution was introduced by Dr. Thompson and passed upon his motion:

Whereas, Hospitals throughout the United States and Hawaii are accepted and certified for intern and residency training, and

Whereas, American Medical Association approval bears great weight in selection by senior medical students in choice of hospital, and

Whereas, The arbitrary and ill-advised methods of the Council on Medical Education and Hospitals in changing the status of said hospitals thus causes many such to be without interns and residents, and

Whereas, The policy lowers the standards of medical and surgical practice in these hospitals, and

Whereas, Such policies are bad for public and professional relations, therefore be it

Resolved, That the Delegates of the Missouri State Medical Association be instructed to cooperate with the delegates from other states so as to cause the Council on Medical Education and Hospitals to cease and desist from its arbitrary policies which are seriously interfering with the previously existing standards of medical procedure, and be it further

Resolved, That a committee of the House of Delegates of the American Medical Association be created to investigate all specialty boards and their relationships to regulation of standards of medical practice.

Questionnaire on Salaries by Division of Health

Dr. Virden presented a letter from Dr. Adams of the Division of Health asking his opinion of the salary which should be drawn in a state hospital by a diplomat of a board. Several members of the Council also had received such a letter. After discussion, and on motion of Dr. Bloom, the chairman was instructed to appoint a committee of four, with each specialty represented, to study this and answer the letter.

Mr. J. W. Foristel

Mr. J. W. Foristel, of the Washington A.M.A. office, told of the work of that office and answered questions concerning that work and on national legislation.

J. W. Thompson, Chairman.

SOCIETY PROCEEDINGS

FOURTH COUNCILOR DISTRICT

OTTO W. KOCH, CLAYTON, COUNCILOR

Lincoln County Medical Society

Twenty-five physicians from Lincoln, St. Charles and St. Louis counties attended a medical dinner meeting at the Southern Air, Wentzville, December 1, 1949. Following a pleasant social hour and a steak dinner the program of the evening was presented by Robert J. Mueller, M.D., St. Louis. Dr. Mueller spoke on "Psychosomatic Medicine" and then illustrated points of his discussion through the cooperation of a patient.

J. C. Creech, Secretary,
Lincoln County Medical Society.

APPORTIONMENT OF TAXES

Several studies on taxes have been issued in the *Bulletin* of the Washington office of the American Medical Association. In April 1948 the *Bulletin* showed that the average state collected six and three fourths times more taxes to support federal government than it collected to support its state government. In 1949, the *Bulletin* reported that the federal government in 1948 was taking 74 per cent of the total taxes collected, leaving 26 per cent for state and local governments.

Bulletin No. 31, of November 25, 1949, gives the further information:

Of the more than forty billion dollars collected by the federal government in 1948, five and one half billions were returned to the states. Many governors have demanded a reapportionment of taxes leaving state and local governments a fairer share of taxes so local obligations can be performed locally, free of government control. There follows a table demonstrating the subsidies and grants by states.

Fiscal Year, 1948—Total Federal Tax Collections by States and the Amount and Percentage Returned to States

State	Tax Paid to Federal Government	Amount Returned to States	Percentage Returned (Approx.)
Alabama	$ 276,943,828	$133,399,689	48
Arizona	83,813,697	31,856,988	38
Arkansas	121,751,193	96,956,563	79½



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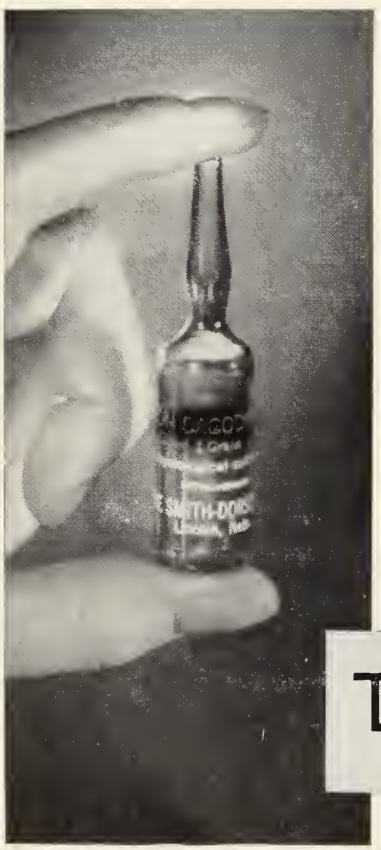
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California	3,103,679,127	393,448,101	12
Colorado	291,848,648	77,986,957	27
Connecticut	664,939,280	57,223,656	8½
Delaware	308,240,962	9,708,920	3
Florida	393,355,704	105,738,895	27
Georgia	439,033,999	133,655,573	30
Hawaii	108,177,886	17,573,197	16
Idaho	79,868,935	32,503,039	40½
Illinois	3,785,815,370	278,727,363	7½
Indiana	1,011,921,119	112,934,031	11
Iowa	446,799,961	98,776,448	22
Kansas	406,084,637	70,166,727	17
Kentucky	780,530,271	104,128,415	13
Louisiana	354,272,182	106,289,991	30
Maine	130,747,191	31,505,558	24
*Maryland	1,148,315,806	159,555,921	14
Massachusetts	1,347,084,092	177,786,157	14
Michigan	2,252,280,551	193,467,807	9
Minnesota	706,239,359	124,051,188	17½
Mississippi	106,838,130	102,524,955	96
Missouri	1,114,993,503	189,206,485	17
Montana	85,184,256	33,125,458	38½
Nebraska	323,448,438	56,062,223	17
Nevada	41,838,676	8,373,423	20
New Hampshire	85,443,959	20,301,942	23¾
New Jersey	1,272,223,662	114,510,488	9
New Mexico	55,320,140	31,694,444	57
New York	7,975,513,716	432,941,740	5½
North Carolina	1,238,661,994	146,069,821	12
North Dakota	69,240,059	31,476,258	42½
Ohio	2,665,707,099	236,982,646	9
Oklahoma	368,486,098	142,324,863	38⅔
Oregon	316,843,555	63,494,304	20
Pennsylvania	3,222,789,298	359,300,954	11
Rhode Island	236,234,082	31,848,753	13½
South Carolina	207,471,906	82,867,725	40
South Dakota	76,211,983	29,320,957	38⅔
Tennessee	359,088,285	148,998,840	40
Texas	1,285,123,045	352,855,457	27½
Utah	92,246,133	38,390,034	41½
Vermont	46,900,540	16,736,663	35½
Virginia	768,646,376	80,933,425	10½
Washington, inc. Alaska	533,126,028	99,179,683	18½
West Virginia	236,727,119	60,487,207	25½
Wisconsin	799,502,104	99,936,367	12½
Wyoming	38,988,288	19,713,316	50

The following footnote appears in the *Bulletin:* "President Truman has just announced that he is sending Federal Security Administrator Oscar Ewing to study health insurance programs in England, Ireland, Sweden, Switzerland, Italy and Israel in that order. Mr. Ewing will be accompanied on the trip by Dr. W. Palmer Dearing, Deputy Surgeon General of the Public Health Service; Dr. David E. Price, Chief of the Research Grants and Fellowships, National Institute of Health, and Dr. Earl McGrath, Commissioner of Education. The President expects to press his health insurance program in the next session of Congress and has asked Mr. Ewing to take plenty of time in studying the plans of the several governments, especially that of Great Britain, in order that he may be better able to support the insurance bill from his knowledge of the experiences of other countries. The President also announced that he will resubmit to Congress proposals for a new Department of Welfare which will include the activities now embraced under the Federal Security Agency."

TUBERCULOSIS ABSTRACTS

Issued Mouthly by the National Tuberculosis Association

Cough is a common symptom, yet often it is not evaluated properly nor treated effectively. The physician is confronted with the questions: What is a cough? What are the causes of coughing? What should be done about it?

COUGH

Cough may be distressing and purposeless but more often it is a necessary and useful act. Cough can be produced voluntarily but more commonly it is a reflex response frequently reinforced by volition.

The act of coughing can be divided into three phases, namely: inspiratory, compressive and expiratory. During the inspiratory phase there is a deep, often quick inspiration, followed by closure of the glottis. This results in an increase in intrapulmonary pressure, the compressive phase, immediately preceding expiration. During the expiratory phase the air is forced out with the production of characteristic cough sounds.

The function of cough is the removal of mucus, inflammatory exudate and other material from the air passages, or foreign bodies and other materials which may have been aspirated into the tracheobronchial tree.

Cough is a complex act which depends for its effectiveness on a number of factors. Important among these are bronchial movements which are dependent upon the ability of bronchi to elongate and increase their diameter during inspiration and to shorten and decrease their diameter during expiration. During the expiration phase there is also forcible compression of the lung through action of the diaphragm and the chest wall.

The narrowing of the bronchus is greatly accentuated in asthmatics and in cases of pulmonary emphysema. It is observed least in persons with pulmonary fibrosis or anthracosilicosis. This compressive action forces secretions upward into the larger bronchi.

Ciliary function is important in the elimination of secretions from all portions of the airway except the terminal bronchioles. During acute infections with excessive or tenacious secretions, activity of cilia may be greatly impaired.

The establishment of a condition of tolerance may lessen or obliterate temporarily the reflex cough. This is commonly observed in patients with bronchiectasis who are able to go without coughing for hours. When cough is initiated volitionally they may evacuate several ounces of pus before again relapsing into a state of tolerance.

What are the causes of cough? In the common respiratory diseases such as pulmonary tuberculosis, pulmonary abscess or other pulmonary diseases, cough is a frequent symptom, and the cause can be demonstrated by roentgen study and physical examination. Excessive smoking and chronic alcoholism produce local congestive changes in the pharynx, laynx and tracheobronchial tree which give rise to cough. Exposure to dust and fumes exerts an unfavorable influence on the respiratory tract. An extrarespiratory cause of cough may be irritation of the external auditory canal, or nasal and pharyngeal obstruction. Cough may be associated with the taking of food or fluid, in paralysis of the larynx, or in laryngeal disease. Severe productive cough occurring when one changes position suggests either pulmonary abscess, bronchiectasis or empyema with bronchopleural fistula.

In investigating this symptom a careful history of the onset and character of the cough, the presence and appearance of sputum, the time of occurrence and associated symptoms are important.

A study of the chest and the cardiovascular system should be made. The more common causes of cough should be excluded first. One should then proceed with an examination of the ears, nose, mouth, throat, laryngopharynx, larynx and neck, which can be done by any physician who has a reasonable knowledge of the upper air and food passages. The inveterate smoker should be encouraged to discontinue smoking and the worker in dust or fumes should minimize exposure in the absence of any definite localizing evidence of disease. Unex-

*Include the District of Columbia, Virgin Islands, and Puerto Rico.

plained radiographic shadows or localized physical signs indicate bronchoscopy if the patient is an adult male. Cough with or without slight sputum is a common early symptom of bronchogenic carcinoma.

Bronchography is indicated if there is any suspicion of increased bronchopulmonary markings suggesting bronchiectasis. With a history of allergy, appropriate tests should be made.

The patient may be contented with the effects of a cough sedative or intralaryngeal instillations. The physician, however, should be interested in determining the cause of the cough.

Cough is necessary to rid the tracheobronchial tree of excessive secretions as in pulmonary abscess or bronchiectasis and in these narcotics should be used sparingly. In carcinoma, cough commonly is purposeless and is an early manifestation of bronchial irration. In the postoperative case the cough "reflex" should not be suppressed. There must be adequate drainage of the tracheobronchial tree to prevent bronchial obstruction with secretions and postoperative pulmonary atelectasis.

If cough is purposeless, cough sedatives may be indicated. When cough is inadequate so-called stimulating expectorants are recommended. Inhalations of carbon dioxide and oxygen increase the quantity of sputum, and have been highly recommended.

The physician must regard cough as a symptom and although relief should be afforded the patient while the cause of cough is investigated, merely suppressing cough with a narcotic often will prove harmful.

Cough, Louis H. Clerf, M.D., The Mississippi Doctor, July 1949.

BOOK REVIEWS

Textbook of Surgery, A, by American authors. Edited by Frederick Christopher, B.S., M.D., F.A.C.S., Professor of Surgery, Northwestern University Medical School; Chief Surgeon, Evanston (Illinois) Hospital. 1465 Illustrations on 742 Figures. Fifth Edition. W. B. Saunders Company, Philadelphia and London. 1949. Price $13.00.

A fifth edition of this textbook of surgery is an attestation of its increasing popularity, especially when it is realized that the first edition came out in 1936. The book has been brought up to date and many new sections, too numerous to tabulate, have been added. It is an excellent book for medical students, interns and general practitions. S. V.

Campbell's Operative Orthopedics, Editor J. S. Speed, M.D., Associate Editor, Hugh Smith, M.D., Memphis, Tenn. Second Edition. With 1141 Illustrations, Including 2 color plates, Volume I. Volume II, 1141 illustrations including 2 color plates. C. V. Mosby Company. St. Louis. 1949. Price $30.00.

First published in 1939 in a single volume, this popular, authoritative text assembled the great mass of orthopedic surgical technics previously available only in articles scattered through the literature or, more frequently, handed down in word of mouth fashion from senior to junior surgeons in the leading orthopedic clinics. Every worthwhile orthopedic operation in use at that time was described in detail, well-illustrated when necessary, and the discussion was spiced with the wise editorial comment of a master orthopedic surgeon.

Dr. Campbell has since died. His staff, headed by Drs. Spencer Speed and Hugh Smith, has rewritten the book, adding three new chapters on "Preoperative and Postoperative care," "Peripheral Nerve Injuries" and "Amputations." New sections also were prepared on "Mold Arthroplasty," "Ruptured Intervertebral Discs" and "Difficult and Unusual Nonunions." Present day concepts of the role of orthopedic surgery in cerebral palsy is another valuable addition to the second edition.

The new material, plus more than eleven hundred illustrations, has necessitated expansion of the book into two volumes, and has really made the first edition obsolete. This text can be recommended without reservation to the orthopedic specialist in practice and in training, and to the many industrial and general surgeons who are interested in this field. R. M. O'B.

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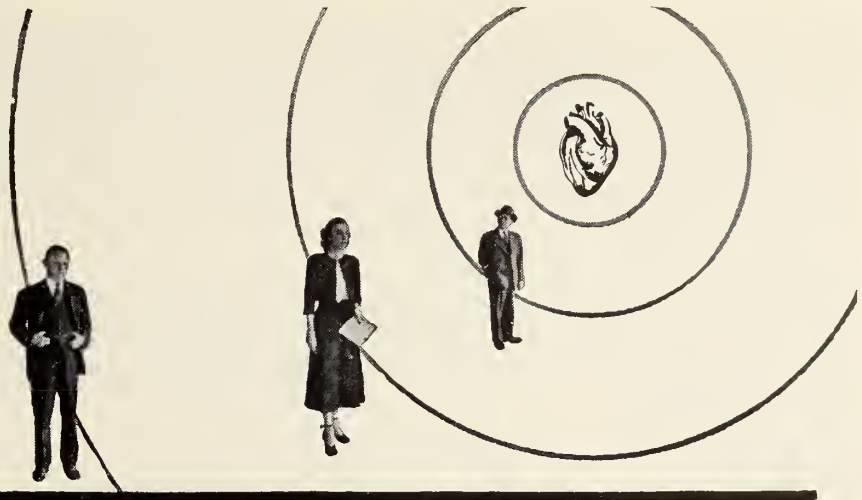
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92nd Annual Session, St. Louis, March 26-29, 1950

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Delegates to the American Medical Association

R. E. Schlueter, St. Louis, 1949-51; alternate, F. G. Pernoud, St. Louis. James R. McVay, Kansas City, 1949-1951; alternate, R. B. Wray, Nevada. W. L. Allee, Eldon, 1948-50; alternate, Paul Baldwin, Kennett. Howard B. Goodrich, Hannibal, 1948-1950.

Standing Committees

Scientific Work—A. N. Arneson, St. Louis, Chairman (1951); Victor B. Buhler, Kansas City (1952); H. E. Petersen, St. Joseph.

Postgraduate Course—M. Pinson Neal, Columbia, Chairman (1952); Carl R. Ferris, Kansas City (1952); Raymond O. Muether, St. Louis (1951); Edward Massie, St. Louis (1951); Guy D. Callaway, Springfield (1950). **Associate Members**—W. W. Tillman, Bolivar; Kenneth Glover, Mount Vernon; Paul O. Hagemann, St. Louis; D. L. Sexton, St. Louis.

Publication—R. O. Muether, St. Louis, Chairman; V. T. Williams, Kansas City; H. E. Petersen, St. Joseph; M. D. Overholser, Columbia; Paul O. Hagemann, St. Louis.

Public Policy and Public Relations—Armand D. Fries, St. Louis, Chairman (1952); J. W. Allee, Columbia (1950); F. R. Crouch, Farmington (1951); Howard B. Goodrich, Hannibal (1951); John Growdon, Kansas City (1950). **Associate Member**—Cyril W. Schumacher, St. Louis.

Defense—Charles E. Hyndman, St. Louis, Chairman (1951); Roland S. Kieffer, St. Louis (1950); L. F. Heimburger, Springfield (1950); O. B. Zeinert, St. Louis (1952); L. P. Forgrave (1952).

Medical Education and Hospitals—John S. Knight, Kansas City, Chairman (1951); F. T. H'Doubler, Springfield (1950); O. J. Gibson, Cape Girardeau (1952); D. M. Dowell, Chillicothe (1950); Oliver Abel, St. Louis (1952).

Cancer—E. C. Ernst, St. Louis, Chairman (1950); E. Kip Robinson, Kansas City (1951); Everett Sugarbaker, Jefferson City (1951); William E. Leighton, St. Louis (1952); Marvin Napper, Springfield (1952).

Medical Economics—Carl F. Vohs, St. Louis, Chairman (1950); Morris S. Harless, Kansas City (1951); C. T. Herbert, Cape Girardeau (1951); G. A. Aiken, Marshall (1952); A. P. Rowlette, Moberly (1952).

Mental Health—E. F. Hoctor, Farmington, Chairman (1951); Paul Hines, St. Louis (1950); Orr Mullinax, Jefferson City (1950); B. Landis Elliott, Kansas City (1952); Frank M. Grogan, St. Louis (1952).

Maternal Welfare—E. Lee Dorsett, St. Louis, Chairman (1952); Leo Hartnett, St. Louis (1952); J. L. Johnston, Springfield (1951); E. E. Wadlow, St. Joseph (1950); J. Milton Singleton, Kansas City (1950).

Infant Care—G. V. Herrman, Kansas City, Chairman (1951); Eugene Schwartz, Springfield (1951); H. E. Petersen, St. Joseph (1950); Peter G. Danis, St. Louis (1952); Park J. White, St. Louis (1952). **Associate Members**—Joseph C. Jaudon, St. Louis; Daniel B. Landau, Hannibal.

Health and Public Instruction (McAlester Foundation)—A. W. McAlester, III, Kansas City, Chairman (1950); M. K. Underwood, Rolla (1951); B. E. DeTar, Joplin (1951); Joseph Conrad, Chillicothe (1950); J. Earl Smith, St. Louis (1952).

Constitution and By-Laws—B. Landis Elliott, Kansas City, Chairman (1950); J. H. Summers, Lebanon (1951); John J. Hammond, St. Louis (1950); W. Logan Allee, Eldon (1952); H. O. Loyd, Jefferson City (1952).

Year indicates expiration of term.

Fractures—Daniel L. Yancey, Springfield, Chairman (1952); W. J. Stewart, Columbia (1951); N. S. Pickard, Kansas City (1951); W. R. Bohne, St. Louis (1950); J. Albert Key, St. Louis (1950). **Associate Members**—Jacob Kulowski, St. Joseph; B. L. Murphy, Hannibal.

Conservation of Eyesight—C. Souter Smith, Springfield, Chairman (1952); Robert Mattis, St. Louis (1951); A. N. Lemoine, Kansas City (1950); C. P. Dyer, St. Louis (1950); Robert S. Minton, St. Joseph (1952). **Associate Members**—Winfred L. Post, Joplin; Philip Luedde, St. Louis; John McLeod, Kansas City; G. J. Tygett, Cape Girardeau; S. L. Freeman, Kirksville; H. B. Stauffer, Jefferson City; E. D. Tenaglia, St. Louis.

Control of Venereal Disease—A. W. Neilson, St. Louis, Chairman (1952); W. S. Sewell, Springfield (1951); Charles Greenberg, St. Joseph (1950); Hugh L. Dwyer, Kansas City (1950); E. M. Cannon, St. Louis (1952).

Industrial Health—V. T. Williams, Kansas City, Chairman (1951); Horace F. Flanders, Kansas City (1951); E. M. Fessenden, St. Louis (1950); A. M. Ziegler, Kansas City (1952); R. A. Sutter, St. Louis (1952). **Associate Members**—R. Emmet Kelly, St. Louis; H. M. Roebber, Bonne Terre.

Special Committees

Physical Medicine—F. Garrett Pipkin, Kansas City, Chairman (1951); Emmett Settle, Rock Port (1950); Luke A. Knese, St. Louis (1950); A. J. Kotkis, St. Louis (1952); J. L. Washburn, Versailles (1952).

Tuberculosis—E. E. Glenn, Springfield, Chairman; Lawrence E. Wood, Kansas City; J. L. Mudd, St. Louis; Paul Murphy, St. Louis; C. A. Brashear, Mount Vernon; W. P. McDonald, St. Joseph; I. J. Flance, St. Louis; Florence E. MacInnis, Kansas City.

Study of Cardiac Diseases—A. Graham Asher, Kansas City, Chairman (1952); Drew Luten, St. Louis (1951); A. M. Estes, Jackson (1951); Julius Jensen, St. Louis (1950); Glenn W. Hendren, Liberty (1952). **Associate Members**—Horace W. Carle, St. Joseph; J. W. Fleming, Moberly; C. B. Davis, Nevada; Arthur Strauss, St. Louis; William I. Park, Springfield.

Rural Medical Service—R. W. Kennedy, Marshall, Chairman; A. E. Spelman, Smithville; J. W. Well, Palmyra; Martin M. Hart, Salem; R. B. Wray, Nevada.

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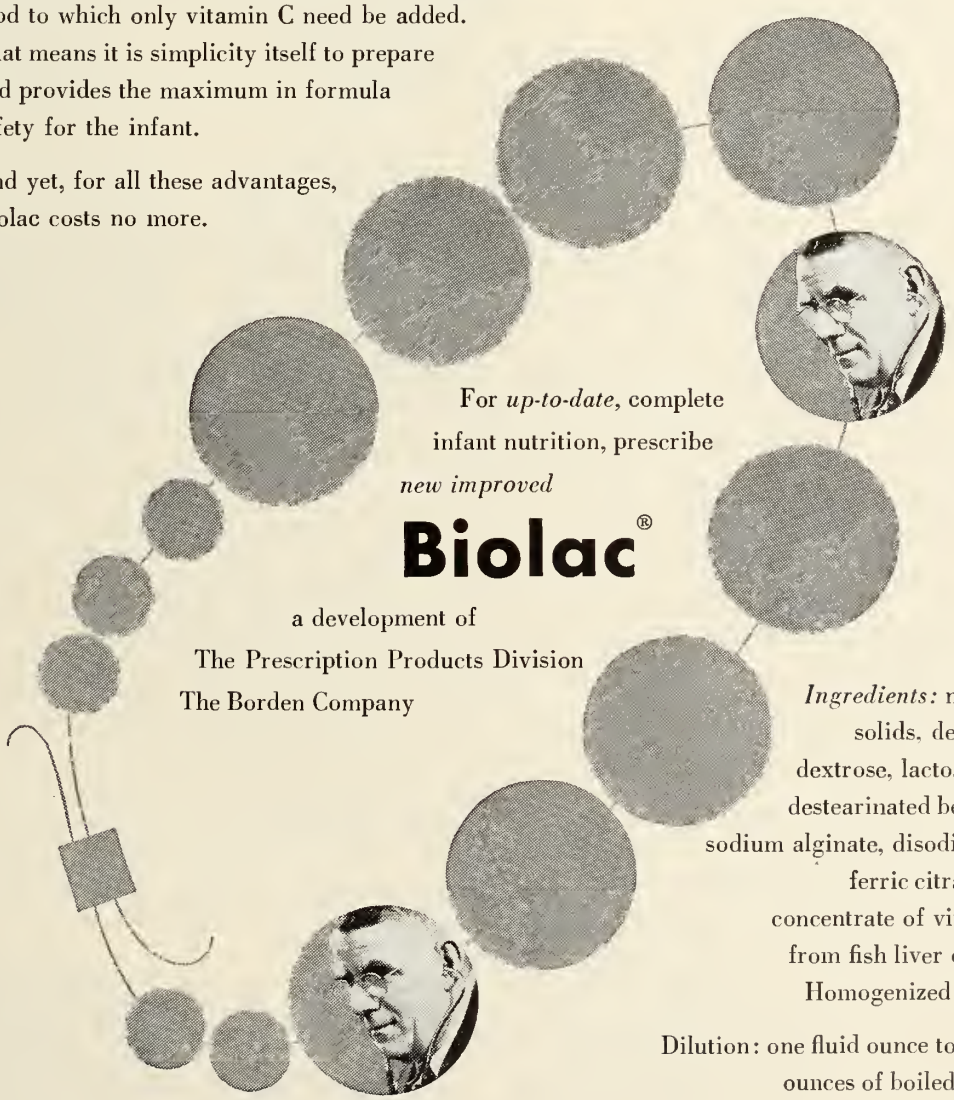
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Benton	6	T. S. Reser	Cole Camp	James A. Logan	Warsaw
Boone	5	James Baker	Columbia	Helen Yeager	Columbia
Buchanan	1	S. Earl Senor	St. Joseph	Allen I. Herman	St. Joseph
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Callaway	5	R. B. Price	Fulton	R. N. Crews	Fulton
Camden	5	E. G. Claiborne	Camdenton	G. T. Myers	Macks Creek
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Cass	6	David S. Long	Harrisonville	William R. Brown	Pleasant Hill
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De Kalb	1			W. S. Gale	Osborn
Dunklin	10	Quinton Tarver	Kennett	E. L. Spence	Kennett
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Pemiscot	10	E. L. Taylor	Steele	C. F. Cain	Caruthersville
Perry	10	J. J. Bredall	Perryville	L. W. Feltz	Perryville
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Hans Brunner—Otolaryngology
Newark, New Jersey

C. Charles Burlingame—Psychiatry
Hartford, Connecticut

F. Bayard Carter—Gynecology
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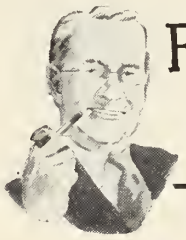
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Joe Marsh

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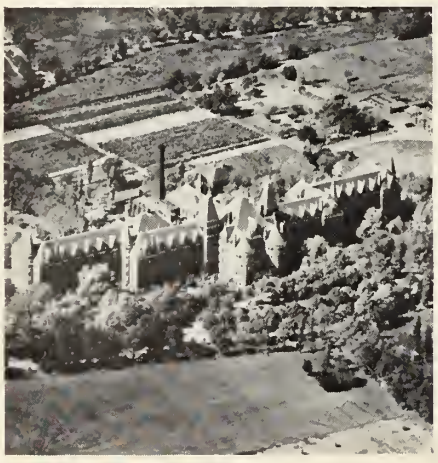
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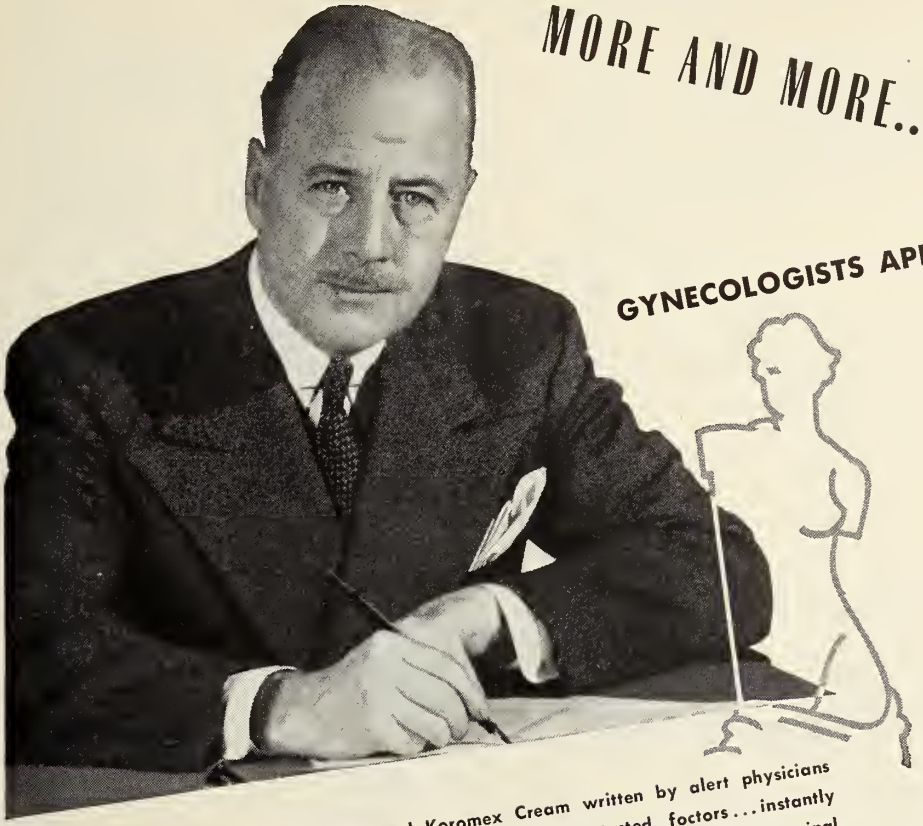
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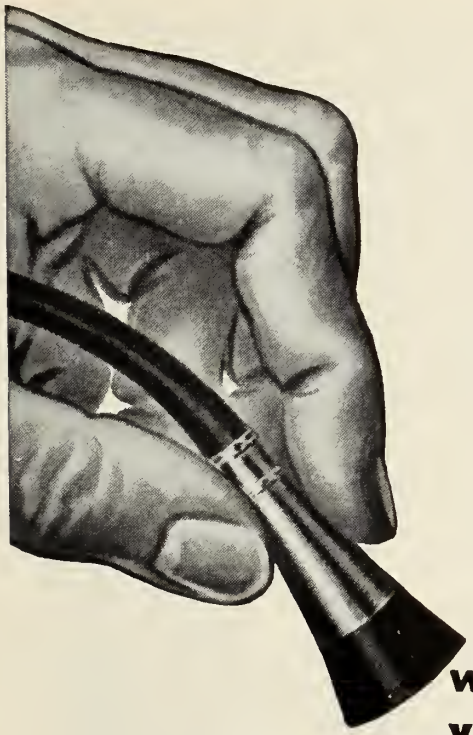


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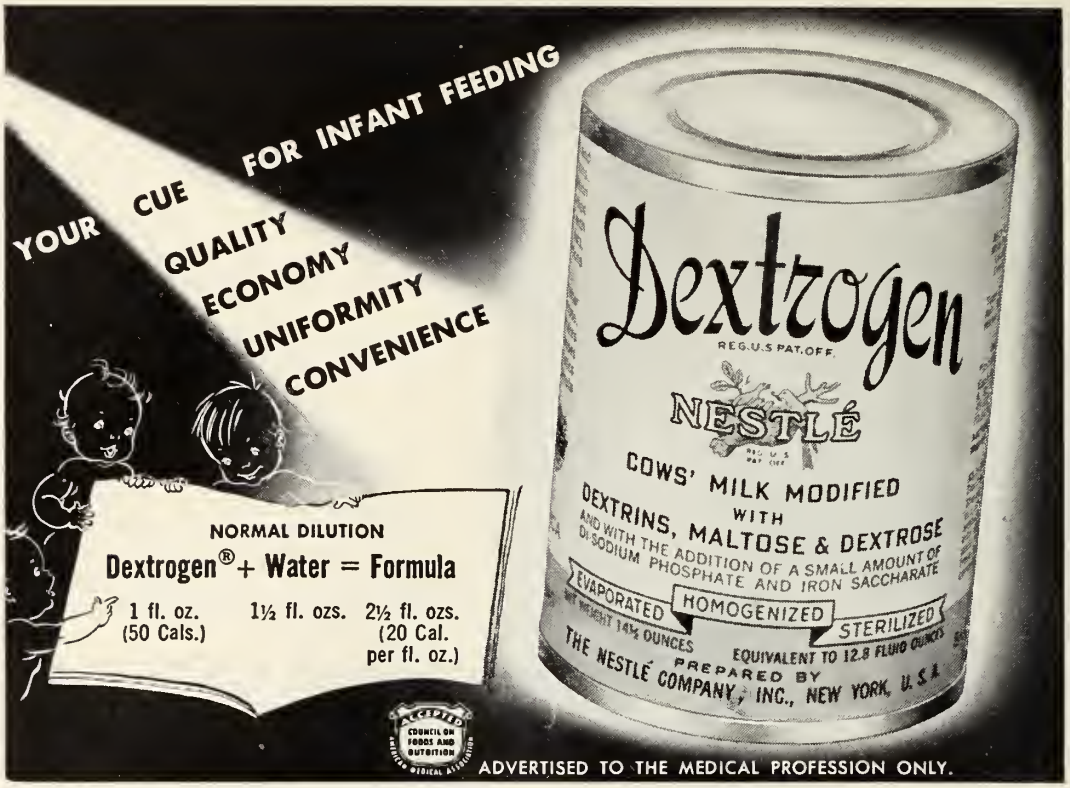
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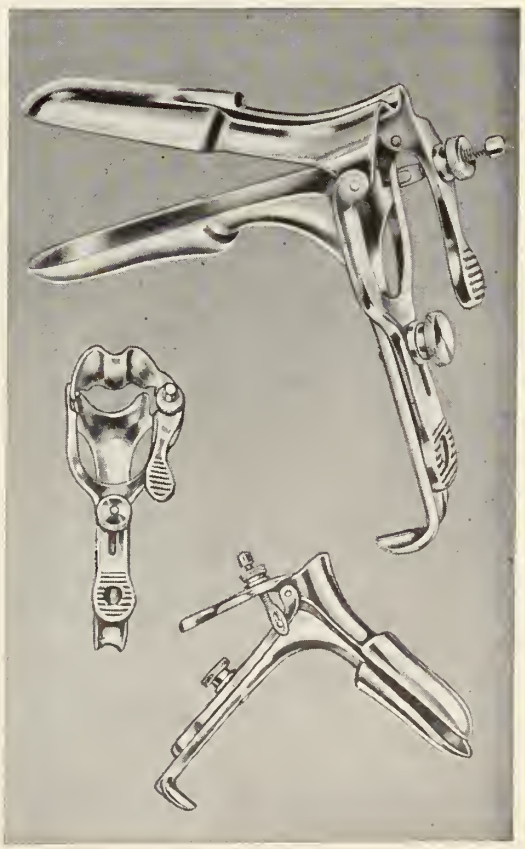
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Entered as second-class matter, February 18, 1925, at the Post Office at Fulton, Missouri, under the Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Section 1003, Act of October 3, 1917, authorized July 30, 1918. Printed by The Ovid Bell Press, Inc., Fulton, Missouri.

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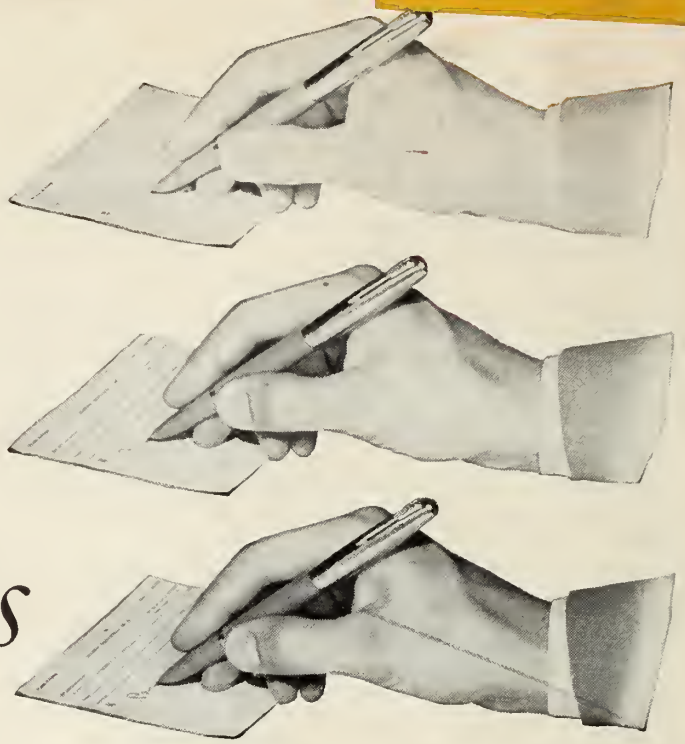
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Clinical Aspects of Acute Myocardial Infarction, *Emmet B. Bay, M.D.,* Chicago

Cafergone for Relief of Headache, *Robert E. Ryan, M.D.,* St. Louis

Comparative Effectiveness of Methergine and Ergonovine in the Third Stage of Labor, *L. M. Riordan, M.D.,* et al, St. Louis

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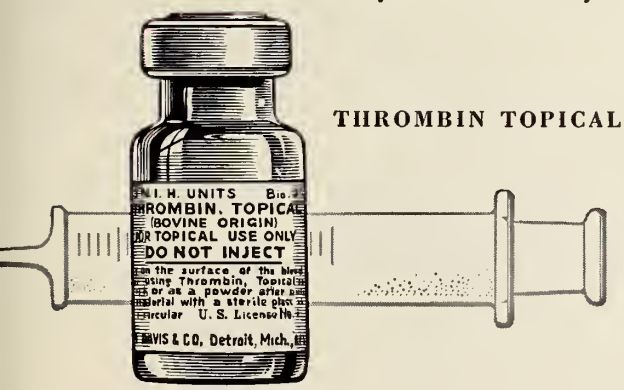
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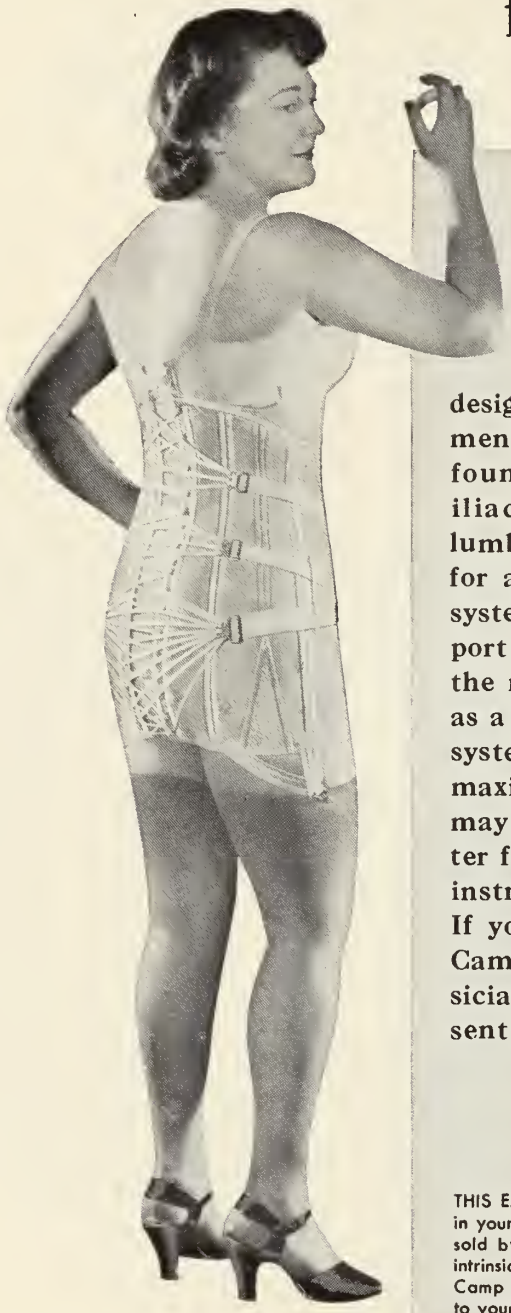


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Publication—R. O. Muether, St. Louis, Chairman; V. T. Williams, Kansas City; H. E. Petersen, St. Joseph; M. D. Overholser, Columbia; Paul O. Hagemann, St. Louis.

Public Policy and Public Relations—Armand D. Fries, St. Louis, Chairman (1952); J. W. Allee, Columbia (1950); F. R. Crouch, Farmington (1951); Howard B. Goodrich, Hannibal (1951); John Growdon, Kansas City (1950). **Associate Member**—Cyril W. Schumacher, St. Louis.

Defense—Charles E. Hyndman, St. Louis, Chairman (1951); Roland S. Kieffer, St. Louis (1950); L. F. Heimburger, Springfield (1950); O. B. Zeinert, St. Louis (1952); L. P. Forgrave (1952).

Medical Education and Hospitals—John S. Knight, Kansas City, Chairman (1951); F. T. H'Doubler, Springfield (1950); O. J. Gibson, Cape Girardeau (1952); D. M. Dowell, Chillicothe (1950); Oliver Abel, St. Louis (1952).

Cancer—E. C. Ernst, St. Louis, Chairman (1950); E. Kip Robinson, Kansas City (1951); Everett Sugarbaker, Jefferson City (1951); William E. Leighton, St. Louis (1952); Marvin Napper, Springfield (1952).

Medical Economics—Carl F. Vohs, St. Louis, Chairman (1950); Morris S. Harless, Kansas City (1951); C. T. Herbert, Cape Girardeau (1951); G. A. Aiken, Marshall (1952); A. P. Rowlette, Moberly (1952).

Mental Health—E. F. Hoctor, Farmington, Chairman (1951); Paul Hines, St. Louis (1950); Orr Mullinax, Jefferson City (1950); B. Landis Elliott, Kansas City (1952); Frank M. Grogan, St. Louis (1952).

Maternal Welfare—E. Lee Dorsett, St. Louis, Chairman (1952); Leo Hartnett, St. Louis (1952); J. L. Johnston, Springfield (1951); E. E. Wadlow, St. Joseph (1950); J. Milton Singleton, Kansas City (1950).

Infant Care—G. V. Herrman, Kansas City, Chairman (1951); Eugene Schwartz, Springfield (1951); H. E. Petersen, St. Joseph (1950); Peter G. Danis, St. Louis (1952); Park J. White, St. Louis (1952). **Associate Members**—Joseph C. Jaudon, St. Louis; Daniel B. Landau, Hannibal.

Health and Public Instruction (McAlester Foundation)—A. W. McAlester, III, Kansas City, Chairman (1950); M. K. Underwood, Rolla (1951); B. E. DeTar, Joplin (1951); Joseph Conrad, Chillicothe (1950); J. Earl Smith, St. Louis (1952).

Constitution and By-Laws—B. Landis Elliott, Kansas City, Chairman (1950); J. H. Summers, Lebanon (1951); John J. Hammond, St. Louis (1950); W. Logan Allee, Eldon (1952); H. O. Loyd, Jefferson City (1952).

Year indicates expiration of term.

Fractures—Daniel L. Yancey, Springfield, Chairman (1952); W. J. Stewart, Columbia (1951); N. S. Pickard, Kansas City (1951); W. R. Bohne, St. Louis (1950); J. Albert Key, St. Louis (1950). **Associate Members**—Jacob Kulowski, St. Joseph; B. L. Murphy, Hannibal.

Conservation of Eyesight—C. Souter Smith, Springfield, Chairman (1952); Robert Mattis, St. Louis (1951); A. N. Lemoine, Kansas City (1950); C. P. Dyer, St. Louis (1950); Robert S. Minton, St. Joseph (1952). **Associate Members**—Winfred L. Post, Joplin; Philip Luedde, St. Louis; John McLeod, Kansas City; G. J. Tygett, Cape Girardeau; S. L. Freeman, Kirksville; H. B. Stauffer, Jefferson City; E. D. Tenaglia, St. Louis.

Control of Venereal Disease—A. W. Neilson, St. Louis, Chairman (1952); W. S. Sewell, Springfield (1951); Charles Greenberg, St. Joseph (1950); Hugh L. Dwyer, Kansas City (1950); E. M. Cannon, St. Louis (1952).

Industrial Health—V. T. Williams, Kansas City, Chairman (1951); Horace F. Flanders, Kansas City (1951); E. M. Fessenden, St. Louis (1950); A. M. Ziegler, Kansas City (1952); R. A. Sutter, St. Louis (1952). **Associate Members**—R. Emmet Kelly, St. Louis; H. M. Roebber, Bonne Terre.

Special Committees

Physical Medicine—F. Garrett Pipkin, Kansas City, Chairman (1951); Emmett Settle, Rock Port (1950); Luke A. Knese, St. Louis (1950); A. J. Kotkis, St. Louis (1952); J. L. Washburn, Versailles (1952).

Tuberculosis—E. E. Glenn, Springfield, Chairman; Lawrence E. Wood, Kansas City; J. L. Mudd, St. Louis; Paul Murphy, St. Louis; C. A. Brashear, Mount Vernon; W. P. McDonald, St. Joseph; I. J. Flance, St. Louis; Florence E. MacInnis, Kansas City.

Study of Cardiac Diseases—A. Graham Asher, Kansas City, Chairman (1952); Drew Luten, St. Louis (1951); A. M. Estes, Jackson (1951); Julius Jensen, St. Louis (1950); Glenn W. Hendren, Liberty (1952). **Associate Members**—Horace W. Carle, St. Joseph; J. W. Fleming, Moberly; C. B. Davis, Nevada; Arthur Strauss, St. Louis; William I. Park, Springfield.

Rural Medical Service—R. W. Kennedy, Marshall, Chairman; A. E. Spelman, Smithville; J. W. Well, Palmyra; Martin M. Hart, Salem; R. B. Wray, Nevada.

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J. W. THOMPSON, St. Louis, Chairman

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First District: Councilor, Donald M. Dowell, Chillicothe. Counties: Andrew, Atchison, Buchanan, Caldwell, Carroll, Clay, Clinton, Daviess, De Kalb, Gentry, Grundy, Harrison, Holt, Livingston, Mercer, Nodaway, Platte, Ray, Worth.

Second District: Councilor, W. F. Francka, Hannibal. Counties: Adair, Chariton, Clark, Knox, Lewis, Linn, Macon, Marion, Monroe, Pike, Putnam, Ralls, Randolph, Schuyler, Scotland, Shelby, Sullivan.

Third District: Councilor, J. William Thompson, St. Louis: St. Louis City.

Fourth District: Councilor, Otto W. Koch, Clayton. Counties: Franklin, Jefferson, Lincoln, St. Charles, St. Louis County, *Warren*.

Fifth District: Councilor, J. F. Jolley, Mexico. Counties: Audrain, Boone, Callaway, Camden, Cole, Cooper, *Gasconade*, Howard, *Maries*, Miller, Moniteau, Montgomery, Morgan, *Osage*.

Sixth District: Councilor, R. W. Kennedy, Marshall. Counties: Bates, Benton, Cass, Cedar, Henry, Johnson, Lafayette, Pettis, *St. Clair*, Saline, Vernon.

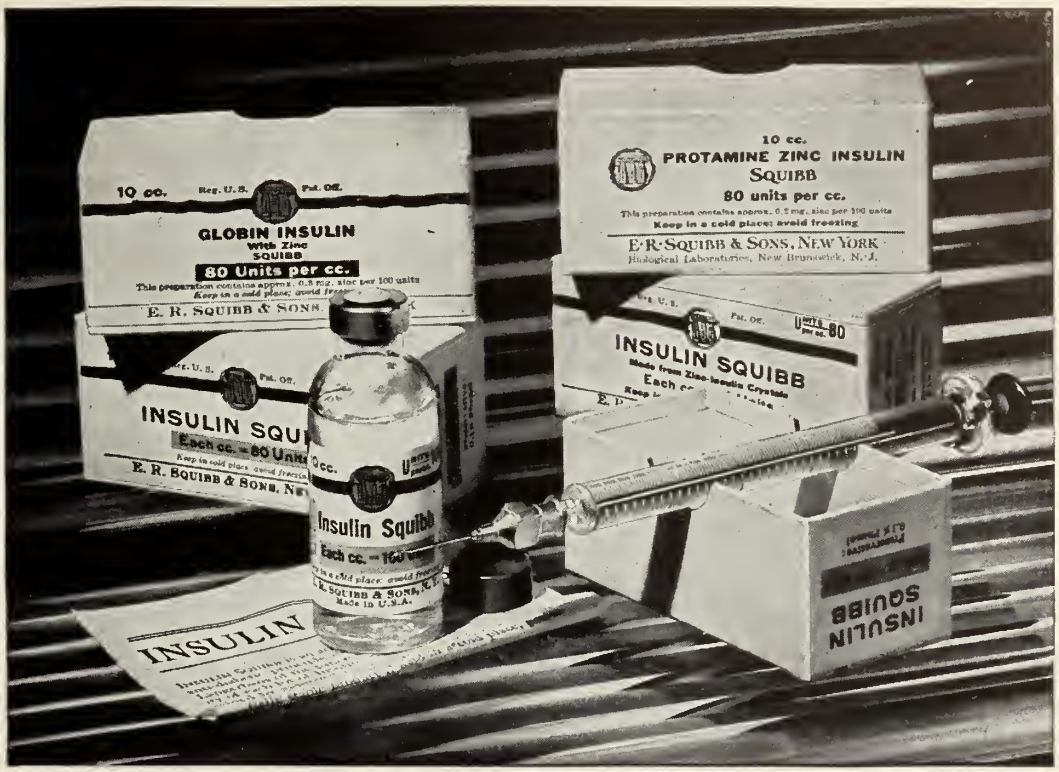
Seventh District: Councilor, Edgar C. Virden, Kansas City. County: Jackson.

Eighth District: Councilor, W. S. Sewell, Springfield. Counties: Barry, Barton, Christian, Dade, Dallas, Greene, Hickory, Jasper, Lawrence, *McDonald*, Newton, Polk, Stone, Taney, Webster.

Ninth District: Councilor, E. Claude Bohrer, West Plains. Counties: Carter, Crawford, Dent, Douglas, Howell, Laclede, Oregon, *Ozark*, Phelps, Pulaski, *Ripley*, Shannon, Texas, Wright.

Tenth District: Councilor, Frank W. Hall, Cape Girardeau. Counties: *Bollinger*, Butler, Cape Girardeau, Dunklin, Iron, Madison, Mississippi, New Madrid, Pemiscott, Perry, Reynolds, St. Francois, Ste. Genevieve, Scott, Stoddard. Washington, *Wayne*.

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Andrew	1	V. R. Wilson	Rosendale	M. L. Holliday	Fillmore
Audrain	5	E. S. Gantt	Mexico	T. L. Dwyer	Mexico
Barton-Dade	8	Alvin R. Cain	Greenfield	Max Heilbrunn	Lockwood
Bates	6	C. J. Allen	Rich Hill	John M. Cooper	Butler
Benton	6	T. S. Reser	Cole Camp	James A Logan	Warsaw
Boone	5	Joseph L. Allen	Columbia	James C. Cope	Columbia
Buchanan	1	S. Earl Senor	St. Joseph	Allen I. Herman	St. Joseph
Butler	10	Frank E. Dinelli	Poplar Bluff	J. W. McPheeters, Jr.	Poplar Bluff
Caldwell-Livingston	1	Lyle M. Daley	Hamilton	Robert F. McCool	Chillicothe
Callaway	5	R. B. Price	Fulton	R. N. Crews	Fulton
Camden	5	F. G. Claiborne	Camdenton	G T. Myers	Macks Creek
Cape Girardeau	10	Garland A. Reynolds	Cape Girardeau	John T. Crowe	Cape Girardeau
Carroll	1	J. Morris Atwood	Carrollton	John H. Platz	Carrollton
Carter-Shannon	9	Harry Rollins	Winona	W. T Eudy	Eminence
Cass	6	David S. Long	Harrisonville	William R. Brown	Pleasant Hill
Chariton-Macon-Monroe-Randolph	2	F. A. Barnett	Paris	Henry K. Baker	Moberly
Clay	1	E. C. Robichaux	Excelsior Springs	S. R. McCracken	Excelsior Springs
Clinton	1	Ronald E. Wilbur	Cameron	F. A. Santner	Lathrop
Cole	5	Marshall Kelly	Jefferson City	J. S. Summers, Jr.	Jefferson City
Cooper	5			J. C. Tincher	Boonville
Dallas-Hickory-Polk	8	C. H. Barnett	Bolivar	John R. O'Brien	Bolivar
De Kalb	1			W. S. Gale	Osborn
Dunklin	10	Quinton Tarver	Kennett	E. L. Spence	Kennett
Franklin	4	Herbert H. Schmidt	Marthasville	F. G. Mays	Washington
Greene	8	Joseph L. Johnston	Springfield	Kenneth E. Knabb	Springfield
Grundy-Daviess	1	Edgar J. Mairs	Trenton	E. A. Duffy	Trenton
Harrison	1	Merriam Gearhart	Bethany	W. A. Broyles	Bethany
Henry	6	S. B. Hughes	Clinton	R. S. Hollingsworth	Clinton
Holt	1	F. E. Hogan	Mound City	D. C. Perry	Mound City
Howard	5	William J. Shaw	Fayette	Maurice P. Leech	Fayette
Jackson	7	Carl R. Ferris	Kansas City	Kenneth E. Cox	Kansas City
Jasper	8	George H. Wood	Carthage	E. H. Hamilton	Joplin
Jefferson	4	Robert H. Donnell	Crystal City		
Johnson	6	O. H. Damron	Warrensburg	Reed T. Maxson	Warrensburg
Laclede	9	H. W. Carrington	Lebanon	B. B. Hurst	Lebanon
Lafayette	6	Douglas Kelling	Waverly	Jordan Kelling	Waverly
Lewis-Clark-Scotland	2	J. R. Bridges	Kahoka	P. W. Jennings	Canton
Lincoln	4	H. S. Harris	Troy	J. C. Creech	Troy
Linn	2	Roy R. Haley	Brookfield	J. R. Dixon	Brookfield
Marion-Ralls	2	H. L. Greene	Hannibal	M. J. Roller	Hannibal
Mercer	1	T. S. Duff	Cainsville	J. M. Perry	Princeton
Miller	5			Carl T. Buehler, Jr.	Eldon
Mississippi	10	G. W. Whitaker	East Prairie	E. C. Rolwing	Charleston
Moniteau	5	K. S. Latham	California	L. L. Latham	California
Montgomery	5	E. J. T. Anderson	Montgomery City	S. J. Byland	Wellsville
Morgan	5	A. J. Gunn	Versailles	J. L. Washburn	Versailles
New Madrid	10	L. J. Smith	New Madrid	H. W. Carter	Portageville
Newton	8	H. C. Lentz	Neosho	J. A. Guthrie	Neosho
Nodaway-Atchison-Gentry-Worth	1	Frank B. Matteson	Grant City	Charles D. Humberd	Barnard
North Central Counties Medical Society (Adair-Schuyler-Knox-Sullivan-Putnam)	2	Ralf Hanks	Kirksville	John B. Jones	Kirksville
Ozarks Medical Society (Barry-Lawrence-Stone-Christian-Taney)	8	Fred Wommack	Crane	Kenneth Glover	Mt. Vernon
Pemiscot	10	E. L. Taylor	Steele	C. F. Cain	Caruthersville
Perry	10	Theodore Fischer	Altenburg	L. W. Feltz	Perryville
Pettis	6	E. L. Rhodes	Sedalia	Carl D. Siegel	Sedalia
Phelps-Crawford-Dent-Pulaski	9	W. R. Lytle	Waynesville	M. K. Underwood	Rolla
Pike	2	Eugene Barrymore	Bowling Green	Charles H. Lewellen	Louisiana
Platte	1	L. C. Calvert	Weston	H. Graham Parker	Platte City
Ray	1	L. D. Greene	Richmond		
St. Charles	4	J. M. Jenkins	St. Charles	Calvin Clay	St. Charles
St. Francois-Iron-Madison-Washington-Reynolds	10	George L. Watkins	Farmington	Marvin T. Haw, Jr.	Bonne Terre
Ste. Genevieve	10	A. E. Sexauer	Ste. Genevieve	R. W. Lanning	Ste. Genevieve
St. Louis City	3	Armand D. Fries	St. Louis	S J. Merenda	St. Louis
St. Louis	4	James R. Meador	Clayton	Louis F. Howe	Brentwood
Saline	6	James A. Reid	Marshall	Charles A. Veatch	Marshall
Scott	10	W. C. Critchlow	Sikeston	W. J. Ferguson	Sikeston
Shelby	2	D. L. Harlan	Clarence		
South Central Counties Medical Societies (Howell-Oregon-Texas-Wright-Douglas	9	Garrett S. Hogg, Jr.	Cabool	A. C. Ames	Mountain Grove
Stoddard	10	H. A. Harris	Bloomfield	W. C. Dieckman	Dexter
Vernon-Cedar	6	William H. Allen	Nevada	Rolla B. Wray	Nevada
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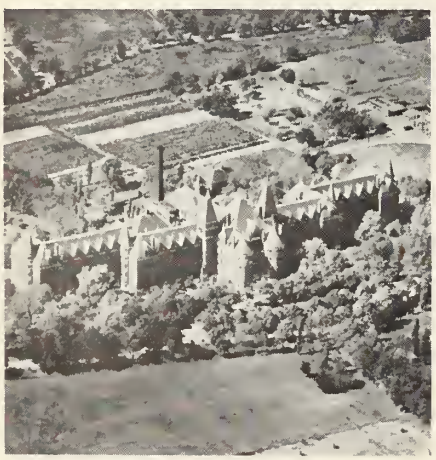
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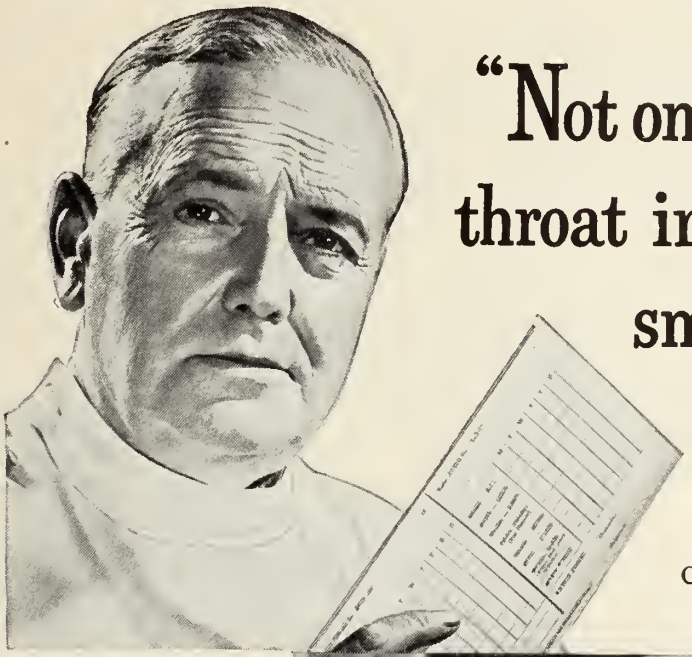
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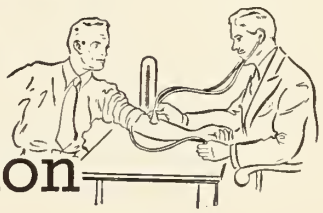
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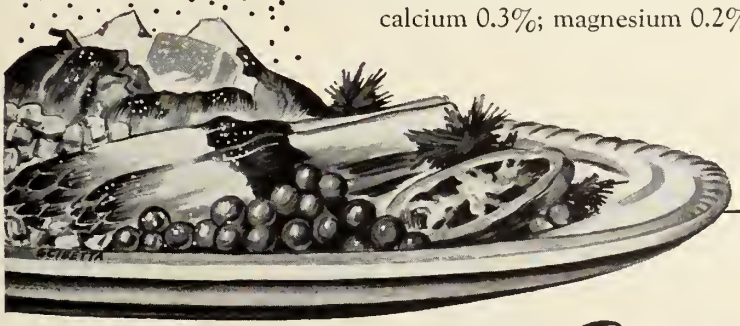
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THE JOURNAL

OF THE

Missouri State Medical Association

Volume 47 FEBRUARY, 1950 Number 2

Scientific Articles

ENDOSCOPIC TREATMENT OF TUMORS OF THE BLADDER

EXPERIENCES WITH 525 CASES

C. E. BURFORD, M.D.
ST. LOUIS
J. E. GLENN, M.D.
ST. LOUIS
AND
E. H. BURFORD, M.D.
ST. LOUIS

THIS PAPER IS a report of the findings in the management of 525 bladder tumors transurethrally from private practice exclusive of all other methods and without discussion.

AGE INCIDENCE

In fifty cases the age was unknown, therefore the study of age was based on 475 in whom the age was known. The greatest number of cases, eighty-eight or 18.5 per cent, fell in the age group of 60 to 64 years, closely rivaled by the 65 to 69 year age group with eighty-one cases or 17.1 per cent. Combining these two groups into a 60 to 69 age span, it comprises 35.6 per cent of all the cases in this series. Three cases were less than 19 years of age and two cases were more than 90 years of age. (Table 1.)

SEX

Males outnumbered females in the ratio of three to one, or 391 to 134.

AGE AND SEX

The greatest incidence was found to occur in the male age group of 60 to 64 (19.8 per cent) while in the female the greatest incidence appeared in a later age group of 65 to 69 (16.2 per cent) years. (Table 2.)

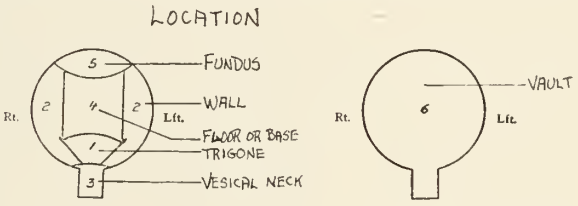
SIZE

The size was estimated as accurately as possible by its mean diameter in centimeters. The smallest tumor was a fraction of 1 centimeter while the largest was in excess of 14 centimeters. The largest group of tumors, 311 (59.2 per cent) measured from 2 to 4.9 centimeters in diameter.

Eighty-one tumors (15.4 per cent) measured 8 centimeters or more in diameter when first observed. The average tumor when first seen measured approximately 4.13 cm. in diameter.

LOCATION

For the basis of reasonable clarity and for comparison with statistics of other observers, some degree of uniformity was achieved by dividing the bladder into zones after the fashion of the Carcinoma Registry of the American Urological Associa-



tion: Zone 1, the trigone; Zone 2, the lateral walls; Zone 3, the vesical neck; Zone 4, the floor or base; Zone 5, the fundus; Zone 6, the roof or vault. The majority of tumors appeared in Zone 2 or the lateral walls with 140 cases or 26.7 per cent and Zone 1 or the trigone ranked second in frequency with 110 cases or 21 per cent. The least frequent site involved was Zone 6 or the vault with 40 cases or 7.6 per cent. (Figure 1 and table 3.)

TYPE

In general, for simplification the tumors were seen to fall into two groups; pedunculated and infiltrative. Each of these were in turn subdivided into single or multiple. There were 291 infiltrative tumors to 232 pedunculated. The most numerous type was the single infiltrative tumor with 253 cases or 48.3 per cent of the entire group.

SIMPLE SURVIVAL

Any case whether treated or not who was not observed for more than five months was considered

From the Department of Urology, St. Louis University School of Medicine, St. Louis.

TABLE 1. *Age Incidence*

Ages	0-19	20-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85-89	90-94	Unknown	Total
Cases	3	7	6	15	17	32	47	67	88	81	53	35	15	7	2	50	525
Per Cent	.6	1.5	1.3	3.1	3.6	6.7	9.9	14.1	18.5	17.1	11.2	7.4	3.1	1.5	.4		100

TABLE 2. *Age and Sex*

Ages	0-19	20-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85-89	90-94	Unknown	Total
Male	2	4	3	7	13	24	36	51	71	62	41	27	12	3	2	33	391
Female	1	3	3	8	4	8	11	16	17	19	12	8	3	4		17	134
Total	3	7	6	15	17	32	47	67	88	81	53	35	15	7	2	50	525

TABLE 4. *Simple Survival*

SURVIVAL IN YEARS		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	18	19	20	23	24	26	27	28	34	Total
ALIVE	No Evidence of Disease	47	19	15	8	10	6	9	5	4	4	3	2	1		1		1	1		2	1	2			1	143
	Recurrence With Disease or Metastases	47	9	6	3	7	2	2	1	3		2	1	1										1			84
DEAD	No Evidence of Disease	15	3	3	2				1							1		1		1			1				28
	With Disease	87	11	7	1	2	1	1	1	1				1	1		1								1		116
LOST (5 months or Less)	No Evidence of Disease	27																									27
	With Disease	127																									127
TOTAL		350	42	31	14	19	9	12	8	8	4	5	3	3	1	2	1	2	1	1	2	1	3	1	1	1	525

lost. At the time twenty-seven were considered lost; they were without evidence of disease both clinically and cystoscopically. There were 127 lost with evidence of disease but sixty-five of these were merely consultations and were not treated nor seen again. The balance of the 525 cases or 371 cases have been followed from six months to thirty-four years. Of these, eighty-seven or 23.45 per cent, were

TABLE 3. *Location*

Zones	1	2	3	4	5	6	Unknown	Tot.
Cases	110	140	75	67	85	40	8	525
Per Cent	21.0	26.7	14.3	12.7	16.2	7.6	1.5	100

dead within the first twelve months; however, an equal number, eighty-eight also or 23.72 per cent, can be listed as five year survivors. One of these is alive without evidence of disease thirty-four years later. One still has his disease but is alive and well twenty-seven years later. One died of his disease twenty-eight years later. The over-all total in 371 traceable and observed cases is 143 alive without evidence of disease, twenty-eight dead without evidence of disease, eighty-four alive with disease or 255 cases (68.7 per cent) against 116 or 31.3 per cent dead of disease. (Table 4.)

TREATMENT

All closed methods are employed in this series such as resection, fulguration, radon seeds, radium element per urethral catheter and x-ray, including combinations of these principles. Simple fulguration was used most frequently, in 237 or 51.7 per cent of all patients treated. The second most frequent measure utilized was simple resection with the McCarthy loop in 103 or 22.4 per cent of all patients treated. Fifty-nine cases had radon seeds and twenty-seven cases had radium element. (Table 5.)

CORRELATION BETWEEN TREATMENT AND SURVIVAL

In this study an attempt is made to show the most efficient method of handling tumors of the bladder from the results of endoscopic treatment. Although some of these groups are quite small, trends seem to indicate (comparing those survivors without evidence of disease with those dead of disease) the most efficient methods of therapy as follows: (1) resection with thorough fulguration of tumor base; (2) fulguration of the tumor with implantation of radon seeds in its base; (3) simple fulguration. (Table 6.)

CORRELATION BETWEEN THERAPY AND 5 YEAR SURVIVORS

This correlation gives a similar comparison with a more significant group. There are so many variables in this vast problem that again one must depend entirely upon the skill and judgment of the individual surgeon as to which method he deems most efficatious to employ for the particular type of tumor, its history, location and size. The results in this smaller study are the same as those in the larger group. (Table 7.)

CORRELATION BETWEEN SIZE AND SURVIVAL

From this comparison one may draw certain conclusions with reservation. It seems apparent at once that the smaller the tumor when first seen, the better hope of survival. The number of sur-

TABLE 5. *Treatment*

METHOD	CASES
Resection	103
Resection—Fulguration	29
Resection—Fulguration Radon Seeds	16
Resection—Fulguration Radon Seeds—Radium Element	1
FULGURATION	237
Fulguration—Radon Seeds	40
Fulguration—X-Ray	4
Resection—Radium Element	1
Fulguration—Radium Element	24
Radon Seeds X-Ray	1
Fulguration—Radium Element X-Ray	1
X-Ray	2
Resection—Radon Seeds X-Ray	1
No Treatment	65
Total	525

vivors without evidence of disease compared to those dying of disease in the 0 to 1.9 cm. group was 79 per cent; in the 2 to 4.9 cm. group 59.6 per cent; in the 5 to 7.9 cm. group 48 per cent; and in the 8 plus group 23.9 per cent. This clearly indicates a plea for early diagnosis. (Table 8.)

CORRELATION BETWEEN LOCATION AND SURVIVAL

By comparison of the survivors without evidence of disease to those dying of disease of tumors located in the various zones, patients with tumors located in Zone 4 (floor or base) are most likely to survive, 74.4 per cent, while those with tumors lying

TABLE 6. *Correlation Between Treatment and Survival*

TREATMENT	ALIVE		DEAD		LOST (5 months or less)		TOTAL
	N. E. D.	RECURRENCE WITH DISEASE	N. E. D.	WITH DISEASE	N. E. D.	WITH DISEASE	
RESECTION	32	19	2	27	8	15	103
Resection—Fulguration	14	7		5	1	2	29
Resection—Fulguration Radon Seeds	5	4	2	4		1	16
Resection—Fulguration Radon Seeds—Radium Element				1			1
FULGURATION	74	38	20	54	16	35	237
Fulguration—Radon Seeds	16	8	3	8	1	4	40
Fulguration X-Ray		1		2		1	4
Resection—Radium Element				1			1
Fulguration—Radium Element	2	6	1	11	1	3	24
Radon Seeds X-Ray		1					1
Fulguration—Radium Element X-Ray				1			1
X-Ray				1		1	2
Resection—Radon Seeds X-Ray				1			1
No Treatment						65	65
Total	143	84	28	116	27	127	525

TABLE 7. *Correlation Between Treatment and 5 Year Survivors*

TREATMENT	ALIVE		DEAD		TOTAL
	N. E. D.	RECURRENCE WITH DISEASE	N. E. D.	WITH DISEASE	
Resection	3	3			6
Resection—Fulguration	8	4			12
Resection—Fulguration Radon Seeds	2				2
Resection—Fulguration Radon Seeds—Radium Element				1	1
Fulguration	33	7	4	5	49
Fulguration—Radon Seeds	9	2		2	13
Fulguration X-Ray		1			1
Resection—Radium Element				1	1
Fulguration—Radium Element	1	1	1		3
Radon Seeds X-Ray					
Fulguration—Radium Element X-Ray					
X-Ray					
Resection—Radon Seeds X-Ray					
Total	56	18	5	9	88

TABLE 8. *Correlation Between Size and Survival*

SIZE (in cms.)	ALIVE		DEAD		LOST (5 months or less)		TOTAL
	N. E. D.	RECURRENCE WITH DISEASE	N. E. D.	WITH DISEASE	N. E. D.	WITH DISEASE	
0-1.9	19	5	4	5	2	11	46
2-4.9	99	48	19	63	19	62	310
5-7.9	16	18	4	17	2	23	80
8+	9	13	1	29	3	27	82
Unknown				2	1	4	7
Total	143	84	28	116	27	127	525

TABLE 9. *Correlation Between Location and Survival*

LOCATION	ALIVE		DEAD		LOST (5 months or less)		TOTAL
	N. E. D.	RECURRENCE WITH DISEASE	N. E. D.	WITH DISEASE	N. E. D.	WITH DISEASE	
ZONE 1. (Trigone)	37	18	6	23	6	26	116
ZONE 2. (Lateral Walls)	34	20	6	33	7	31	131
ZONE 3. (Vesical Neck)	20	11	3	17	4	22	77
ZONE 4. (Floor or Base)	29	12	2	10	3	14	70
ZONE 5. (Fundus)	17	16	7	16	6	21	83
ZONE 6. (Vault)	6	7	4	14	1	8	40
UNKNOWN				3		5	8
TOTAL	143	84	28	116	27	127	525

TABLE 10. *Correlation Between Type and Survival*

TYPE	ALIVE		DEAD		LOST (5 months or less)		TOTAL
	N. E. D.	RECURRENCE WITH DISEASE	N. E. D.	WITH DISEASE	N. E. D.	WITH DISEASE	
Pedunculated Single	82	24	8	24	16	31	185
Pedunculated Multiple	16	13	4	7	2	5	47
Infiltrative Single	35	38	14	75	7	84	253
Infiltrative Multiple	10	9	2	10	2	5	38
Unknown						2	2
Total	143	84	28	116	27	127	525

TABLE 11. *Correlation Between Duration Symptoms and Survival*

DURATION	ALIVE		DEAD		LOST (5 months or less)		TOTAL
	N. E. D.	RECURRENCE WITH DISEASE	N. E. D.	WITH DISEASE	N. E. D.	WITH DISEASE	
1 DAY	9	2	2	4	2	4	23
3 DAYS	5	2		3	1		11
1 WEEK	6	3	1	5	4	3	22
2 WEEKS	9	5	1	4	1	6	26
1 MONTH	28	21	12	28	9	16	114
6 MONTHS	28	14	4	28	3	25	102
1 YEAR	17	7	3	8	2	13	50
2 YEARS	7	4	1	5		7	24
3 YEARS	2				1	6	9
4 YEARS	2	4		3		2	11
5 YEARS		3		2	1		6
6 YEARS	1						1
7 YEARS						1	1
8 YEARS			1				1
UNKNOWN	29	19	3	26	3	44	124
TOTAL	143	84	28	116	27	127	525

in Zone 6 (vault) are least likely to survive, 30 per cent. An almost equally good chance of survival might be given to patients with tumors in Zone 1 (trigone) or 61.7 per cent with all the others falling in a range approximating 50 per cent. It might seem then that from the poor accessibility of the tumor or the luxuriant lymphatic supply (mentioned by Ash) of the bladder in this area, that the vault or roof of the bladder is a most dreaded site for tumors to arise. It is fortunate, indeed, as observed earlier, that in this location are found the least tumors. (Table 9.)

CORRELATION BETWEEN TYPE AND SURVIVAL

Conclusions may be drawn readily from this study of type and survival by again comparing those survivors without evidence of disease with those dead of disease. Apparently the optimal survival may be expected in the single pedunculated group by 77.3 per cent with less optimal survival expected in the multiple pedunculated group by 69.6 per cent. However the infiltrative type of tumor offers much less chance of survival with the infiltrative multiple falling in the 50 per cent category but the infiltrative single type offers only a 30.4 per cent chance of survival. (Table 10.)

SYMPTOMS

By far the most frequent symptom was hematuria, in 86.6 per cent of the cases. The next most frequent symptom was weight loss in 7.3 per cent followed closely by urinary frequency in 6.8 per cent.

DURATION OF SYMPTOMS

No doubt duration of symptoms influences the general results of this problem more than any other. The duration of symptoms varied from one day to as long as eight years. Less than 50 per cent or 196 out of 401 cases with accurate information regarding the onset of symtoms were in the hands of a urologist by the end of the first month. Some 176, or 44 per cent, were under the care of a urologist only after from six months to two years. Certainly the outcome should have been beneficially influenced by education of nature's danger signs to the profession as well as to the layman.

NUMBER OF TREATMENTS

Of the 525 cases in this report, sixty-five were considered untreated because they were consultations. Of the remaining 460 cases the number of individual treatments varied from one to seventy. A grand total of 1,898 treatments were given with an average of 4.13 treatments per patient while under observation.

CORRELATION BETWEEN DURATION SYMPTOMS AND SURVIVAL

The only possible explanation for the results of this study may lie in the rather characteristically slow yet inexorable growth of bladder tumors without producing symptoms until quite late. Those cases with symptoms up to and inclusive of one month's duration survived little better than those with symptoms of longer duration when comparing the total number of cases with no evidence of disease to those dying of the disease. (Table 11.)

SUMMARY AND CONCLUSIONS

1. The average case would be a 64 year old male, with a history of attacks of hematuria of some one to two months duration with single infiltrative type of tumor of the bladder measuring 4 cm. in diameter and located on the lateral wall.

2. This man would stand about a one in four chance of surviving five years with endoscopic therapy.

3. He will most likely be subjected to resection, fulguration of the base and probable implantation of radon seeds.

4. Because of the unusual character of this growth the duration of symptoms does not necessarily determine the size and therefore the prognosis of the disease as much as the size itself, so the sooner one reports for an estimate of his situation the better his chance of survival.

5. Operative mortality, those dying within six weeks following therapy, comprised sixteen cases or 3.4 per cent. Analysis reveals no operative mortality since 1944 and most of the sixteen cases died prior to 1930. Five of these cases died of emboli or coronary heart disease. One died of pneumonia in one month following two resections. One died in three weeks following a single resection of intestinal obstruction. Two patients died in uremia in three weeks following two fulgurations each. In the remaining seven cases the cause of death was not stated but came on an average of one month following a single simple procedure such as a fulguration or a resection.

6. As a rough guide for endoscopic therapy one may state:

Primary Operable: No previous treatment of any sort; less than 4 cm. in diameter; not involving any part of trigone or ureteral orifices; no demonstrable metastases.

Primary Inoperable: No treatment previously but fails to meet some one of the conditions mentioned in "Primary Operable."

Recurrent Operable: Same as "Primary Operable" except previous treatment.

Recurrent Inoperable: Same as "Primary Inoperable," except treatment before.

Prophylactic: Primary tumor missing, no local recurrence, no metastases.

958 Arcade Bldg.

ATTRIBUTE BALDNESS IN WOMEN TO METAL CURLERS, TIGHT BRAIDS

Women who consistently use metal curlers on their hair or wear it in tight braids may develop bald spots above the ears, according to three Los Angeles doctors.

Drs. Samuel Ayres, Jr., Samuel Ayres, III, and Joseph I. Mirovich report five cases of such baldness in the December *Archives of Dermatology and Syphilology.*

Three of the women had been using metal curlers and two had been wearing their hair pulled away from the ears and braided tightly.

THE CLINICAL ASPECTS OF ACUTE MYOCARDIAL INFARCTION

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The clinical aspects of acute myocardial infarction, when they are classical, need no review for this audience. All third year medical students and, indeed, many laymen can make the diagnosis from the history alone when it is textbook-like. The atypical varieties can, however, be confusing to the experienced cardiologist. The recognition of these variants is important to secure early adequate treatment and to prevent needless operations.

So-called "silent" coronary occlusion does not occur as often as the literature would lead one to believe. When it does, it easily can be overlooked. When it occurs without any chest pain whatsoever, the patient may go into shock or into acute left heart failure. The blood pressure frequently drops more than is customary in typical attacks. The patient may be bathed in perspiration and the extremities quickly become cold. The condition is easier to diagnose if the patient has had pre-existing angina pectoris. It has to be distinguished from other entities causing a shock-like picture or comatose or semicomatose states. The electrocardiogram is more likely to change early in the course of this type of myocardial infarction than is true in the classical variety. The other findings tend to run true to form. The heart tones are frequently faint and distant; the leukocytosis is frequently quite high by the second day, as is the fever. The sedimentation rate also may be quite elevated.

A close cousin to this variant is the myocardial infarction accompanied by mild pain. It may be merely a vague sense of fullness in the chest without any radiation to the arms, neck or teeth. This sensation may vary in severity from patient to patient up to the classical excruciating pain which apparently is one of the worst to which the body may fall heir. It becomes easier to diagnose properly as the pain increases in severity.

A good example of the silent coronary occlusion which was difficult to diagnose immediately occurred in our hospital two years ago. The patient was an elderly male who entered the hospital with congestive heart failure, presumably as a result of arteriosclerotic cardiovascular disease. He was treated successfully in the usual manner and was about to be discharged when he developed a massive hemorrhage from an old peptic ulcer. This also was treated successfully and, again, he was about to leave the hospital when at two in the morning he collapsed. By the time the house staff reached him, he was unconscious and pulseless. A blood pressure reading could not be obtained. The resident believed that he was dealing with another massive hemorrhage although no melena could be demonstrated on rectal examination. He was given a series of plasma and whole blood transfusions, totaling 2,200 cc. in approximately 45 minutes. He regained consciousness at this time and his blood pressure was 90 systolic and 60 diastolic. The resident, who was an alert young man, thought enough of the possibility of a silent coronary occlusion to secure an emergency electrocardiogram, which revealed bizarre changes from the previous ones. A series of tracings taken in the next four weeks revealed classical evolution of a posterior myocardial infarction pattern. At no time did the patient complain of any sensation in the chest.

The location of the pain in other cases may be quite atypical. A few patients will describe pain limited to the neck, for example. This pain may be quite severe or may be merely a sense of fullness accompanied by a choking sensation, all above the clavicles. A few patients describe pain limited to the arms and even to the elbows. In others the pain may begin as a sensation localized by the patient to the epigastrium. Nearly always the pain travels upward in the latter case, and the true nature of the pathologic condition becomes evident. In those in whom it remains apparently below the diaphragm it can be confused with ruptured peptic ulcer or gallbladder disease or acute pancreatitis. Not a few needless operations have been performed on patients with this type of coronary pain. In all these cases in which the localization of the pain is unusual, the routine physical findings and laboratory tests provide the clue to the situation.

The radiation of the pain may be atypical. Two patients with verified myocardial infarction had pain referred to the left leg as well as the left arm. Not infrequently it radiates to the back. If it is low in the chest, this can cause confusion with pancreatitis and gallbladder disease readily. If it is high between the shoulder blades, it needs to be distinguished from a dissecting aneurysm of the aorta. This distinction is, of course, important because one would not want to use anticoagulant therapy if he knew he was dealing with a dissecting aneurysm. The differential diagnosis is not always easy because not infrequently a dissecting aneurysm proceeds proximally to encroach on the coronary orifices in a way that leads to the electrocardiographic manifestations of myocardial infarction.

Another variation from the typical clinical picture consists in multiple episodes of pain of short duration comparable to angina pectoris except that the pain occurs in the absence of exertion or excitement. This is the status anginosus of the older writers and is nearly always a part of a fresh myocardial infarction or an ominous warning that one is imminent. The diagnosis may be obscured early by the fact that the blood pressure may rise to unusual heights during the paroxysms of pain. The classical drop in blood pressure may not occur for some hours. This picture has to be distinguished

Presented before the 91st Annual Session, Missouri State Medical Association, Kansas City, March 27-30, 1949.
From the Department of Medicine, University of Chicago.

from such things as adrenal tumors. Because of the close association of this symptom complex with myocardial infarction, it is now believed that such patients should be hospitalized quickly and given anticoagulant therapy even though no proof of a coronary occlusion has yet been obtained. It is hoped thereby to prevent or minimize the myocardial infarction.

There are other premonitory signs of coronary occulsion which are much less clean-cut. Perhaps the best one is the first episode of anginal pain of short duration occurring in a patient who has either arteriosclerotic changes, high blood pressure, or both. Not infrequently this first episode of angina effort is followed within ten days by a protracted attack of pain representing a true infarction. Whether one is justified in hospitalizing such patients when they have had but one attack of angina, if one sees them within that ten day period, is debatable. There have been two such patients come into the hospital, for other reasons as well, before the days of anticoagulant therapy, who developed frank coronary occlusion under our eyes. One of these patients died on the fifth hospital day. It would seem probable that had he been given heparin and dicumarol, his life might well have been saved.

In spite of the use of anticoagulants, some of the complications of acute myocardial infarction continue to appear. However, these drugs have been shown to modify the mortality and to cut the number of complications rather dramatically. It is important, therefore, for the physician to have his "index of suspicion" for these atypical forms of coronary occlusion at a high level.

950 E. 59th Street.

TREAT BLOOD CLOT IN BRAIN BY BLOCKING NERVE PATHWAY

Doctors have devised a promising treatment for a clot in a blood vessel of the brain, according to a report in the January 7 *Journal of the American Medical Association.*

Until recently treatment of the condition, acute cerebral thrombosis and embolism, was confined to general measures such as administering intravenous fluid or giving whisky.

The new technic, known as stellate ganglion block, is reported by Drs. Edwin W. Amyes and Seymour M. Perry of the College of Medical Evangelists and University of Southern California School of Medicine, Los Angeles.

It involves blocking certain nerve pathways to vessels which supply the brain. This is done by injecting procaine hydrochloride, a pain-killing drug, in nerve pathways at the back of the neck. The procedure tends to increase the blood supply to the part of the brain that has been affected by the clot.

Of the forty-four patients treated, twenty-eight showed improvement in 15 minutes to an hour after the first injection was given. The doctors noted increased alertness, greater ability to move, improved speech and better comprehension.

Improvement occurred in nine of ten cases who received the treatment in the first six hours after the onset of symptoms, the doctors say.

CAFERGONE FOR RELIEF OF HEADACHE

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A FURTHER STUDY

CAFERGONE is a preparation which contains 1 mg. of ergotamine and 100 mg. of caffein. Caffein has been used in connection with the treatment of headache principally in combination with acetylsalicylic acid and acetophenetidin. Caffein is a stimulant and produces vasoconstriction of both the intracranial and the extracranial blood vessels. Ergotamine tartrate has been a useful agent in the treatment of migraine type of headache for many years.

Cafergone is manufactured in sugar coated tablet form. Previous reports on this new product have been made by Horton, Ryan and Reynolds[1] early in 1948 and again by Ryan[2] early in 1949. It is the purpose of this report to evaluate further the merits of this product in regard to the relief it affords in certain types of headache.

The types of headache studied and included in this report were histaminic cephalgia, migraine, tension headache, arteriosclerotic headache and atypical facial pain.

Histaminic cephalgia as described by Horton[3] is characterized by a unilateral headache which usually begins in the later decades of life, is of short duration as it usually lasts less than one hour, commences, and often terminates suddenly, tends to awaken the patient at night from one to two hours after he has gone to sleep and frequently is eased by the patient sitting up or standing erect. It is associated with profuse watering and congestion of the eye, rhinorrhea or stuffiness of the nostril, increased surface temperature and, often, swelling of the temporal vessels of the involved side of the head. Pain is the outstanding complaint. It is constant, excruciating, burning and boring; it involves the eye, the temple, the neck and often the face.

Migraine type of headache is a periodic headache, usually hemicranial, which is associated with nausea, vomiting, scotomata and a family history of similar headaches.

A tension type of headache may be localized or generalized as any vessel may be the origin of the pain. The headache is not caused by nervous tension, *per se,* which gives rise to a state of hypertonicity, but by the hypotonicity (vasodilatation) which follows the hypertonicity (vasoconstriction). Pain does not occur during the vasoconstriction phase but follows shortly thereafter and is a vasodilating phenomenon.

Arteriosclerotic type of headache occurs in cases of cerebral arteriosclerosis. It is a continuous dull headache which often is described as a pressure rather than a pain. It may be generalized or occasionally a stabbing, sharply localized headache.

The atypical face pain group includes various odd types of pain involving the face which are not

characteristic of any major type of neuralgia.

In all cases in this report, the best average dose of Cafergone was found to be two tablets, not one. Another factor which is important in the administration of this drug is for the patient to take the tablets at the onset of the attack of headache. If this is not done, and the attack is pronounced, Cafergone is found to have little or no effect upon the headache. Cafergone, therefore, should be used to abort the attack and not used as a cure for the headache. Cafergone will not cure any type of headache but, from the results in this study, it is shown to be of great benefit in the aborting of an attack. One of the chief causes of failure in using Cafergone is based upon this fact; that is, one not familiar with Cafergone may employ it to cure headaches and prescribe it routinely throughout the day. This is not the proper administration of the drug and will fail to give the patient the desired results. Some patients viewed in this study had received Cafergone through other sources and were taking it three or four times a day routinely with little or no effect. However, when these patients were told to take two tablets at the onset of their attack, the results were different. It is also important that Cafergone be employed in the proper type of headache for it is not useful in all types of headache.

Table 1. *Administration of Cafergone in Cases of Headache.*

Types of Headache	No. of Cases	Side Effects	RESULTS Excellent[a]	Good[b]	Poor[c]
Histaminic cephalgia	46	5	37	5	4
Migraine	110	11	81	18	11
Tension	40	4	11	6	23
Arteriosclerotic	5	2	—	—	5
Atypical face pain	5	—	—	—	5
Total	201	22	129	29	48

[a] Complete relief of symptoms.
[b] Partial relief of severity and duration of symptoms.
[c] Little or no relief of symptoms.

Of the 201 cases which were treated with Cafergone, 129 received excellent results. This is 64 per cent. Twenty-nine of the patients received good results which represents 14 per cent. This means that 78 per cent of the 201 patients treated received some benefit from the administration of Cafergone.

A small percentage of the cases (11 per cent) covered in this report experienced toxic symptoms. These toxic symptoms consisted of nausea, abdominal cramps and distress. None of these patients experienced actual vomiting.

From these results it may be assumed that Cafergone is an effective agent to use in aborting attacks of migraine and histaminic cephalgia. The results obtained in the cases of tension type headache were not quite as good as in the migraine and histaminic cephalgia and could be classed only as fair. In consideration of the arteriosclerotic type of headache and the atypical facial pain groups, Cafergone seems to be of no value whatsoever.

It is important to remember that Cafergone is to be used to abort attacks of migraine and histaminic cephalgia and definitely is not claimed to be a cure for these types of headaches or for any other type of headache. It is also important that the drug be used properly and this depends entirely upon the advice given by the physician to his patient.

612 Wall Bldg.

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THE COMPARATIVE EFFECTIVENESS OF METHYLERGONOVINE TARTRATE (METHERGINE) AND ERGONOVINE IN THE THIRD STAGE OF LABOR

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Oxytocic drugs have been accepted widely by the medical profession in the handling of the third stage of labor because of their effectiveness in reducing hemorrhage, aiding involution of the uterus and decreasing postpartum morbidity. This paper is a report of a clinical study comparing the effectiveness of ergonovine and methylergonovine tartrate (Methergine) in reducing third stage blood loss.

For a number of years, ergonovine has been one of the most widely used oxytocic drugs. It was first extracted and identified as the alkaloid responsible for the oxytocic effect of crude ergot in 1935 by four independent groups of investigators.[1,2,3,4] However, ergonovine has definite disadvantages. It has limited stability in aqueous solution and can be extracted economically only from crude ergot of high quality. With this in mind, Stoll and Hoffmann,[5] in 1943, used d-lysergic acid, the basic component of all ergot alkaloids and obtainable even from ergot of inferior quality, to synthesize a stable homologue of ergonovine known as methylergonovine tartrate or Methergine. The difference in chemical structure is shown by the formulae in figure 1.

The pharmacologic properties of Methergine were investigated extensively by Kirchhof, Racely, Wilson and David[6] who found that the drug is similar in action to ergonovine. Both have a slight adrenergic action, lack a sympatholytic action and have a specific uterotonic action. Further studies by Kirchhof, David, Phatak and Racely[7] revealed that the toxicity of Methergine is extreme-

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ly low and probably will show no undesirable side effects with dosage at the therapeutic level in humans.

Clinical studies have shown Methergine to be superior to ergonovine in many respects. Gill[8] used an intrauterine bag connected to a manometer for an accurate comparison of the oxytocic effects of Methergine and ergonovine in postpartum women. He found that uterine contractions were 1.5 times stronger and of 1.3 times greater duration with Methergine. Roberts[9] and Williams[10] found Methergine much more effective in reducing blood loss and shortening the third stage of labor. The average length of the third stage following the intravenous injection of Methergine at the time of the delivery of the shoulders was 4.3 minutes by Roberts, 4.5 minutes by Gipstein,[11] 5.8 minutes by Williams and 6.9 minutes by Tritsch, Schneider and Longworth.[12] Gipstein also stated, with reference to Methergine, that "Postpartum bleeding and the amount of lochia was decreased (and) involution took place sooner."

Table 1. *Average Blood Loss in the Third Stage of Labor as Modified by Methergine and Ergonovine.*

	Methergine		Ergonovine	
	No. Cases	Avg. cc Blood Lost	No. Cases	Avg. cc Blood Lost
Primiparae	37	115.8	33	114.4
Multiparae	60	99.9	67	119.2
Entire Group	97	106.0	100	117.7

All investigators have been impressed by the lack of toxic symptoms and the apparent safety of the drug when used properly.

METHOD OF INVESTIGATION

The present study was done on 197 unselected, consecutive patients, admitted to the obstetrical division of a general hospital, to determine the comparative effectiveness of Methergine and ergonovine in reducing the blood loss in the third stage of labor.

One group of ninety-seven women in labor were given 1.0 cc. of a solution containing 0.2 mg. of Methergine intravenously as soon as the infant was delivered over the perineum. Another group of 100 women was given 1.0 cc. of a solution containing 0.2 mg. of ergonovine intravenously at the same time and in the same manner.

In each group, a sterile basin was placed at the vulva to collect all blood lost during the third stage. This collected blood was measured in a graduated container to the nearest 5.0 cc. mark and interpreted as "blood loss." The time of injection of the drug and the collection of the blood was the responsibility of a resident physician or intern aware of the study and assisting the attending physician at the delivery.

Many variable factors in the two groups were constant and, therefore, were considered equalizing for the comparative study as a whole. The most apparent of these variables were:

1. Forty-two physicians with varying obstetric technic attended the 197 deliveries.

2. The placenta often was delivered at the convenience of the attending physician rather than at the optimal time of placental separation.

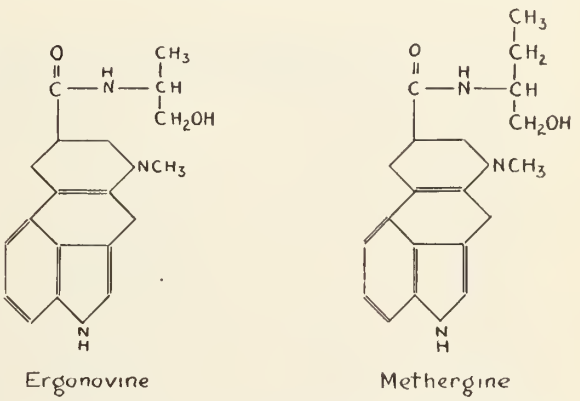
3. Blood absorbed by the drapes or sponges was not included in the measured blood loss.

4. No attempt was made to distinguish blood arising from the uterus, an episiotomy or a laceration.

5. No allowance was made for variations in fetal position or presentation, pathologic complications or the total duration of labor.

RESULTS

Both Methergine and ergonovine are effective in reducing third stage bleeding to well below the generally accepted hemorrhagic level of 300 cc.



The average blood loss with Methergine was 106.0 cc., with ergonovine 117.7 cc., a difference of little significance at this low general level. Table 1 shows in detail the average blood loss for both groups as well as the differences observed according to the parity of the patient.

By separating the patients into groups according to the amount of blood lost, data of more obvious significance is obtained. This is tabulated in detail in table 2.

A considerably greater percentage of the patients in the group given Methergine has a blood loss of 100 cc. or less, 76.3 per cent in the Methergine series compared to 64 per cent for the ergonovine series. Eight and two tenths per cent of the patients in the Methergine series bled in excess of 200 cc. compared to 8.0 per cent of those in the ergonovine series.

In each series, the multiparae were represented by a larger percentage of patients in the lower blood loss ranges than were the primiparae. This may be explained by the fact that episiotomies were done much more frequently in the primipara with the additional amount of bleeding being included in the measured blood. Also, the primipara remained under a general anesthetic longer than did the multipara. Tritsch, Schneider and Longworth, in a series of 711 cases, showed that general anesthesia increases blood loss by an average of 50 cc.

In the entire series of 197 patients, the placenta was retained by incarceration within a firmly con-

tracted uterus in only one case. This occurred after the use of Methergine in a multipara in whom no attempt was made to express the placenta until after the episiotomy was repaired. Manual extraction was done thirty-one minutes after the injection of the oxytocic drug with a total blood loss of 100 cc. It was observed during the course of this study that many physicians were lulled into a false sense of security by the relative absence of bleeding in the third stage following the injection of a potent oxytocic drug and, frequently, made no attempt to deliver the placenta as it separated. It is believed that with the use of any powerful oxytocic drug the placenta should be expressed by *gentle means* as soon as possible after its separation to prevent incarceration within the uterus. This ordinarily can be accomplished with the first uterine contraction following the delivery of the infant.

Unusual events occurring in patients which might have been expected to cause increased bleeding in this series were:

(a). Methergine group.

1. A multipara, with an infant presenting in the occiput posterior position, was delivered by combined version and extraction of the infant following unsuccessful attempts at forceps delivery. The blood loss was 30 cc.

2. A primipara, with secondary uterine inertia and prolonged labor secondary to a deep transverse arrest of the presenting fetal vertex, was delivered by midforceps rotation of the head. The blood loss was 125 cc.

3. A primipara with a placenta succenturiata had a 200 cc. blood loss.

(b) Ergonovine group.

1. A primipara was delivered of fraternal twins with the spontaneous delivery of the second infant from a vertex presentation occurring after an interval of twenty-seven minutes. The total blood loss was 100 cc.

2. A multipara with placenta praevie lateralis was managed conservatively. Third stage blood loss was 700 cc.

Two patients in the Methergine group had bleeding in excess of 500 cc. One lost 700 cc. of blood chiefly as a result of an episiotomy and extensive lacerations of the vagina which were repaired under a general anesthesia. The other lost 650 cc. of blood without apparent reason. One patient in the ergonovine group lost 700 cc. of blood, as mentioned previously, because of lower uterine segment bleeding in a case of placenta praevia.

In our experience, Methergine is a powerful and effective oxytocic drug. A larger percentage of patients have less bleeding during the third stage of labor following the use of Methergine than with ergonovine. If used with ordinary care, Methergine is a safe drug.

Table 2. *Patients in the Methergine and Ergonovine Series Grouped into Various Levels of Bleeding in the Third Stage of Labor.*

cc. of Blood Lost	Primiparae				Multiparae				Entire Series			
	Methergine		Ergonovine		Methergine		Ergonovine		Methergine		Ergonovine	
	No. Pts.	Per Cent Pts.	No. Pts.	Per Cent Pts.	No. Pts.	Per Cent Pts.	No. Pts.	Per Cent Pts.	No. Pts.	Per Cent Pts.	No. Pts.	Per Cent Pts.
0-50	12	32.4	9	27.3	28	46.7	22	32.8	40	41.2	31	31
51-100	14	37.8	11	33.3	20	33.3	22	32.8	34	35.1	33	33
101-200	8	21.6	11	33.3	7	11.7	17	25.3	15	15.5	28	28
201-300	1	2.7	1	3.0	2	3.3	4	5.9	3	3.1	5	5
301-500	1	2.7	1	3.0	2	3.3	1	1.5	3	3.1	2	2
over 500	1	2.7	0	0.0	1	1.7	1	1.5	2	2.0	1	1

SUMMARY

1. Methylergonovine tartrate (Methergine) is a homologue of ergonovine synthesized from d-lysergic acid, the basic component of all ergot alkaloids. It possesses pharmacologic properties similar to ergonovine but differs from it by being physically stable and more readily available.

2. The effectiveness of Methergine was compared to ergonovine in preventing blood loss during the third stage of labor in a series of 197 patients.

3. In the Methergine group 76.3 per cent of patients lost 100 cc. or less blood as compared to 64 per cent of the ergonovine group.

4. The average blood loss in the Methergine group was 106.0 cc. as compared to 117.7 cc. in the ergonovine group.

5. The intravenous use of powerful oxytocic drugs following delivery of the infant requires prompt, gentle expression of the placenta.

6. Methergine is more effective in preventing loss of blood during the third stage of labor in a larger percentage of patients than is ergonovine.

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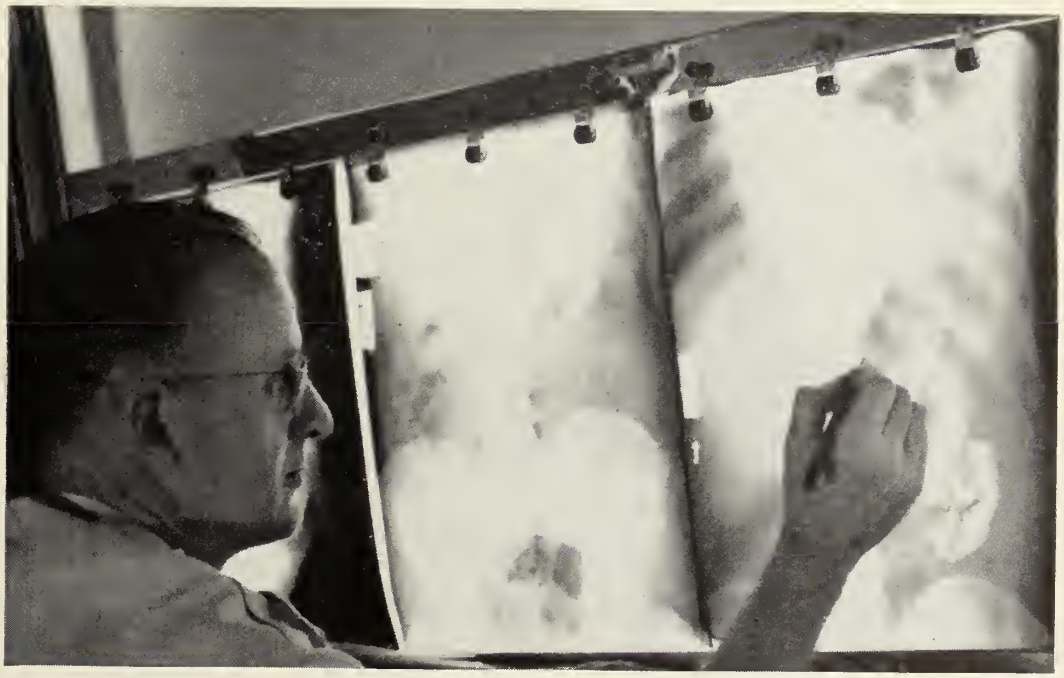
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DIABETES MELLITUS

TREATMENT WITH INTERMEDIATE INSULINS

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I WILL TRY to review briefly the most effective technics now in use in the treatment of severe diabetes with some of the newer insulins. These methods involve primarily the consistent use of a diet which is not extravagant in its carbohydrate content, in the first place, and, secondly, a firm belief in the desirability of maintaining relative freedom from abnormal glycosuria in so far as is possible without frequent or severe insulin reactions or intolerable inconvenience. There are many good reasons for adhering to both of these policies which cannot be elaborated upon today.

Preliminary to discussion of the timing of the intermediate insulins and their use in treatment of diabetes, it is appropriate to review the action of the better known standard preparations in use and to outline some of their faults in severe diabetes.

In simple aqueous solution insulin itself has a sugar reducing action which is prompt, strong and transient. Action curves of single large doses of ordinary and crystalline insulin in contrast with the slowest of the modifications, protamine zinc insulin, are shown in figure 1. Peak action comes clearly about four hours after hypodermic injection and effects are exhausted in about twelve hours, even after large doses. For this reason multiple daily doses are required in the treatment of diabetes of much severity. Even then, sugar levels are usually high before and after breakfast unless small amounts are injected during the night.

Protamine insulin has helped to overcome these difficulties. The action of a similar large single dose is shown in figure 1. Its effect is slow in onset, weak at its peak and wanes slowly in the second and third days after injection. When it is given every day its depot type of action results in a pseudo-cumulative effect which does not become fully apparent for several days. This extremely slow time-action is suitable for mild diabetes in which details of timing are not important, but in severe diabetes certain obvious faults are apparent which have led to further refinements in timing. These faults consist of a definite tendency to heavy glycosuria following meals generous in carbohydrate content, on one hand, and profound and even dangerous reduction of the blood sugar during long intervals without food, on the other. This is especially likely to happen if dosages of protamine insulin are raised to high levels in an effort to reduce heavy glycosuria after meals. Behavior such as this was treated formerly by the separate injection of a small dose of regular insulin at the same time as the daily dose of protamine insulin. It is now known that better results can be accomplished with single morning injections of one of the intermediate insulins which will be described.

Globin insulin with zinc is a compound of insulin with beef globin and zinc which is marketed in slightly acid solution. When neutralized, a precipitate similar to protamine insulin is formed. It probably undergoes partial precipitation on buffering by tissue fluids after injection, thereby yielding a combination of rapid and sustained insulin effects.

In stabilized diabetic patients single large doses of this preparation begin to act in four hours, reach their peak of fairly strong activity in about eight hours, hold this peak until about sixteen hours, fade appreciably at twenty-four hours, but retain weak activity into the second day after injection, thus overlapping the subsequent days dose when given once daily. Globin insulin, therefore, is most suitable for morning injection in patients with diabetes severe enough to allow post-prandial glycosuria in spite of doses of protamine insulin which are large enough to cause fasting normal or low sugar levels. It causes allergic reactions less often than other depot insulins and possesses the distinct advantages of stability and uniformity of composition because it is in solution rather than suspension.

Figure 2 shows its time-activity in comparison with two commonly used protamine insulin mixtures. It is similar to a 2:1 mixture in action, and distinctly more rapid and intense than protamine zinc insulin (fig. 1).

Protamine insulin mixtures occupy a similar field of usefulness in treatment of severe grades of diabetes. Little change occurs in the action of protamine insulin until excesses of insulin are added to it. The excess of protamine present in standard protamine zinc insulin precipitates all insulin added up to a saturation limit which varies with the reaction of the mixture. Mixtures made in the syringe which are not mixed thoroughly result in uncertain effects and should not be employed. Mixtures are reasonably stable and are best prepared in an empty sterile ampoule as needed.

The mixture which has proved to be effective most frequently in severe diabetes is one containing twice as much ordinary insulin as protamine zinc insulin, thoroughly mixed in the U-80 concentration. Slightly higher proportions of insulin are indicated in some patients. A 2:1 mixture shows time-activity similar to that of globin insulin with zinc (fig. 2), reaching its peak during the feeding hours and waning, as a rule, during the night when given once daily before breakfast. Significant acceleration of effect and increase in intensity occur when 2:1 proportions are exceeded.

It is apparent from their timing characteristics

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Presented at the 91st Annual Session, Missouri State Medical Association, Kansas City, March 27-30, 1949.

that these intermediate modifications are indicated whenever the timing faults of plain or protamine zinc insulin fail to give good control or make multiple daily injections necessary.

Other modifications with intermediate action which are not available for general use but which

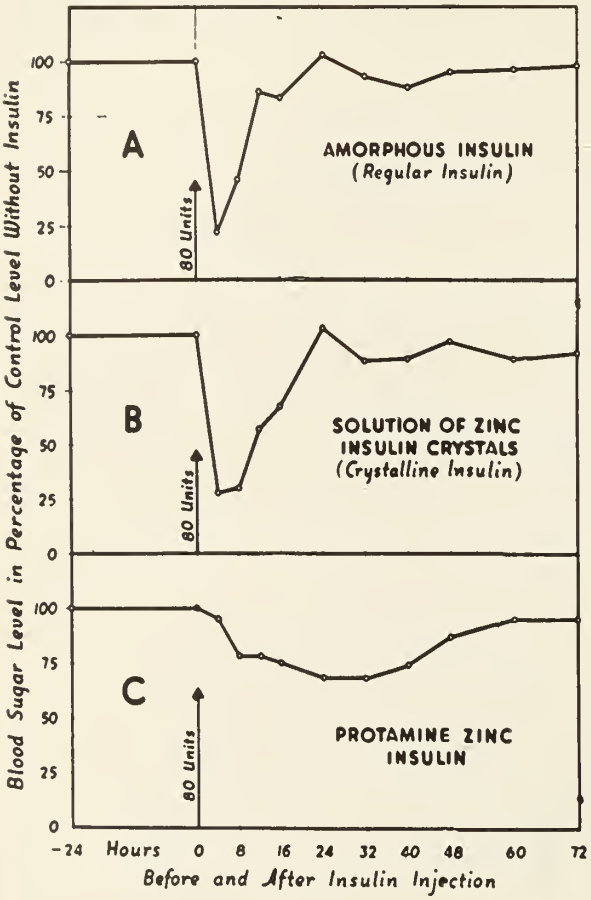


Fig. 1.

have been studied intensively are a crystalline protamine insulin containing less protamine than the commercial variety, which is more stable and uniform in composition than mixtures, and a biphasic mixture which, when freshly prepared, contains about 25 per cent of its insulin in solution and 75 per cent in precipitated form with protamine. Both show the desirable timing of globin insulin and effective mixtures. The crystalline preparation may be developed to the point of commercial production, replacing protamine insulin as now manufactured and filling the greatest need for protamine insulin mixtures at the same time.

SEVERE DIABETES: INTERMEDIATE INSULINS

A severe form of diabetes is present in an appreciably large proportion of all patients needing insulin for control—perhaps one third. Many of these patients are young. The disease has existed for a long time in some patients and has not been managed well in many others. The patients are thin, on the average, although some of them may have gained much weight as a result of too much food and satisfactory control. Chronic complications may make moderate grades of diabetes more severe. The insulin requirement is usually high, but not necessarily, particularly in children. (Mild diabetes may also require high dosage on account of insulin-insensitivity.) Frequently acidosis has occurred; it happens more easily in diabetes of this severity. Insulin reactions occur more easily and more violently than in milder forms of the disease and with smaller amounts of insulin. Heavy glycosuria appears on slight provocation and more transiently than in less severe types. Diabetic symptoms have been more intense in untreated or inadequately treated cases. This is particularly true of loss of weight, probably accounting for the relatively high proportion of thin people in this group.

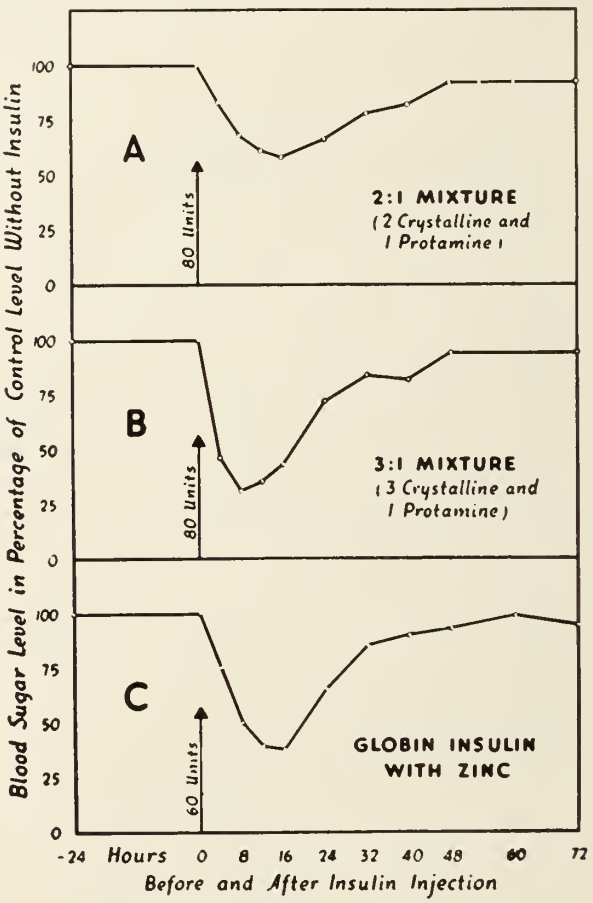


Fig. 2.

When diabetes mellitus of this intensity exists, a fairly typical behavior pattern is apparent. This pattern suggests the most appropriate form of management. Typical behavior consists of (1) glycosuria following meals in spite of amounts of protamine insulin which control the fasting (overnight) sugar levels; (2) nocturnal hypoglycemia, sometimes violent, if slow acting insulins are used in sufficiently large dosage to control all glycosuria;

(3) the need for, or use of, both rapid and slow acting insulins in any combinations or in multiple daily injection schedules.

When any of these situations exists, or when the diabetes answers the preceding description, special insulin technics are indicated. In all but a small proportion of extremely severe, labile or "brittle" cases the use of insulins with intermediate time-action gives better control with less inconvenience and fewer insulin reactions than orthodox methods.

Treatment.—Intermediate insulins fit the normal eating and sleeping habits of the individual better than the slower and quicker acting preparations which are better known. This is true of globin insulin with zinc as well as mixtures of insulin and protamine zinc insulin containing excesses of ordinary insulin. The choice between these two preparations depends on the performance of the individual patient. So does the choice of proper proportions in protamine insulin mixtures.

When the behavior pattern of any patient with severe diabetes suggests the need for an insulin with intermediate timing, it is most expedient to make a direct transfer to an equivalent dose of globin insulin or to a uniform mixture containing twice as much insulin (regular or crystalline) as protamine zinc insulin, thoroughly mixed and both in the U-80 strength. Mixtures may be prepared in an empty sterile ampoule weeks in advance or be mixed in the syringe at the time of injection. The former method is easier, more accurate and perfectly safe. Injections always should be given each morning before breakfast.

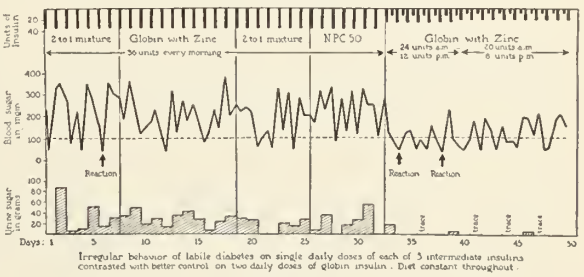
Substitution of one of these modifications for protamine insulin transfers insulin effect from the sleeping hours of the night into the feeding hours of the day. The peak action from morning injections appears about the time of the evening meal and the effect tends to wear off during the night. Significant overlapping of effect from day to day is maintained and the twenty-four-hour fasting sugar is relatively easy to control. Thus, the glycosuria after meals and nocturnal hypoglycemia which are so characteristic with protamine insulin in severe diabetes are both minimized or eliminated, if the insulin fits the patient and diet properly. If not, minor adjustments of the diet or insulin or both ordinarily can accomplish a good balance.

Recent studies indicate that globin insulin with zinc has a slightly more profound effect at its peak (eight to twelve hours) than a 2:1 mixture, and that it wears off a little more rapidly in the second day after injection. For this reason it resembles a 2 1/3 or 2 1/2:1 mixture more closely. A 2:1 mixture is a trifle less intense and exhibits more sustained action in overlapping. These differences are not so striking as has been suggested by earlier studies.

When either of these intermediate insulins is used, it is possible to eliminate transient glycosuria or avoid a tendency toward insulin reactions at certain times of day by the judicious transfer of food from any meal which causes glycosuria to afternoon or bedtime.

With the protamine insulin mixtures it is occasionally possible to secure improved control by using 2½ or 3:1 proportions if any tendency to afternoon or evening glycosuria, together with nocturnal hypoglycemia, persists in spite of the substitution of a 2:1 mixture for protamine zinc insulin. This is particularly true for juvenile diabetes.

It is seldom advantageous to use mixtures containing less than twice as much regular or crystalline insulin as protamine zinc insulin.



Irregular behavior of labile diabetes on single daily doses of each of 3 intermediate insulins contrasted with better control on two daily doses of globin insulin. Diet constant throughout.

Fig. 3.

Diets used in conjunction with insulins such as these must not be extravagant in carbohydrate content. Carybohydrate to fat ratios of 1:1 or 3:2 in grams are most suitable.

A small proportion of patients with severe diabetes cannot be balanced consistently by means of any of these adjustments: these "labile" or "brittle" diabetic patients must be treated in such a manner that great inconvenience is avoided, severe insulin shock circumvented and minimal glycosuria condoned as the lesser of two evils.

LABILE DIABETES: SPECIAL TECHNICS

From every standpoint this is the most severe variety of human diabetes mellitus known. It is characterized by unstable performance under orthodox methods of treatment which control less severe forms without difficulty. Woodyatt has designated it by the term "brittle," implying that the state of control breaks easily in either direction. Perfect balance is ordinarily impossible to obtain by any reasonably convenient method of management; therefore, special criteria for control and unorthodox methods of treatment are the only feasible ones.

Most children develop lability after several years of diabetes, especially at maturity if early control has not been maintained conscientiously. Many young adults likewise do so after long (ten to twenty years) persistence of the disease. Among older patients this type of behavior is much less common, but by no means rare. Chronic endinocrinopathic complications such as menstrual disorders and hyperthyroidism sometimes are associated. Thinness is the rule, possibly becaue.good nutrition is not easy to maintain. Omission of insulin leads to severe acidosis within a few days; diabetic coma is common in this class for that reason and, also, because

acute intercurrent infection has the same effect unless appropriate preventive measures are used.

Sensitivity to insulin is typical of this class of diabetic patients. For this reason the requirement for insulin may not be excessive in spite of the other signs of severity of diabetes. Occasional patients require as little as 10 units of insulin daily, yet exhibit all other indications of great severity and lability. More often the requirement exceeds 40 units daily; from 80 to 100 unit dosages are not uncommon. In-

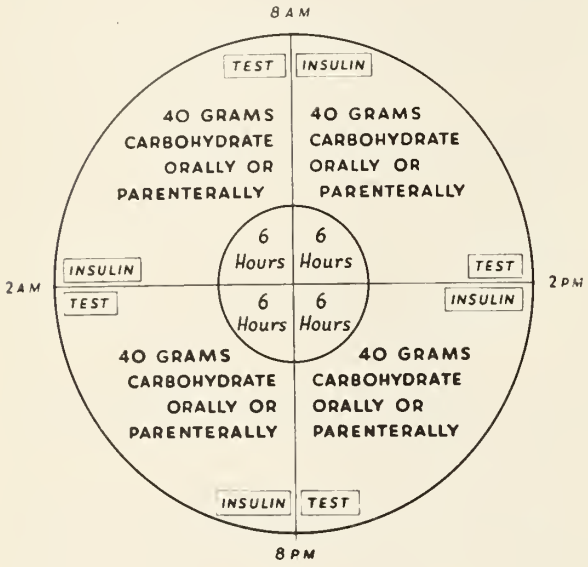


Fig. 4.

sulin shock occurs violently and unexpectedly on regimes which ordinarily produce no reactions. Waves of heavy glycosuria occur suddenly for no apparent reason and subside just as quickly and inexplicably. This is particularly true when depot insulins are used only once daily or when ordinary insulin is given at intervals which allow no overlapping. As a rule hyperglycemia and glycosuria recur rapidly on waning of insulin effect, even without food, and excessively high fasting levels are common unless substantial depot insulin effects are present. These may vary from morning to morning.

It often is believed that this behavior results from variable endogenous factors which alter the sugar balance in spite of constant conditions of diet and insulin. That this is not true is demonstrated easily by the fact that these patients can be regulated perfectly on programs which involve small, overlapping doses of ordinary insulin at rhythmic intervals together with small, frequent feedings or in fasting. It appears to be unavoidable inconsistencies in diet, depot insulins and exercise which are responsible for the unpredictable irregularities in control. These patients apparently have retained no residue of ability to regulate their own sugar balance homeostatically and so reflect all minor imperfections in management violently. Their problems are certainly the most difficult in the realm of insulin and diet adjustment.

Treatment.—The only feasible criteria which can be applied in the management of labile diabetes follow. With a maintenance diet the patient should be kept as free from glycosuria and hyperglycemia as possible without severe insulin shock or too many insulin injections each day. It is possible to accomplish this by the application of unusual methods of giving insulin.

The best method I have observed so far is the use of one of the intermediate insulins in two doses daily. Figure 3 illstrates how improvement in balance follows this distribution. Mixtures containing from 2 to 3 parts regular or crystalline insulin to 1 part protamine zinc insulin, or globin insulin, given in such a manner that about two thirds of the total daily requirement is taken before breakfast and one third in the evening, usually permit smoother control than when the entire dose is given in the morning. This is probably because the two smaller injection depots each day release their insulin more uniformly than one larger depot. Two smaller periods of time are spanned by smaller doses than one longer period by a larger dose, so unexpected wide fluctuations in insulin effect do not occur as readily. Globin insulin with zinc acts in the same manner. Twice as many injections are required, but the results are worth the additional inconvenience.

The use of regular insulin before breakfast and lunch and globin insulin before the evening meal has been advocated by Jackson and McIntosh. Mosenthal has reported good results from simultaneous morning injections of separate doses of protamine and globin insulins, the latter in the smaller dosage. Others have obtained satisfactory results by giving about one half of the total insulin requirement in the form of protamine insulin in the morning, and the other one half in the form of regular insulin, about equally divided between the morning and evening meals.

Undoubtedly the best insulin technic for the labile type of case is four equal doses of regular or crystalline insulin, each given every six hours, night and day, with meals of equal glucose values. Figure 4 illustrates the detail of this method. Since the food and insulin are thus insured to be distributed uniformly, a fairly exact balance can be maintained in spite of the ease with which labile diabetes reflects errors in balance. In surgical and infectious complications this methods is efficient, but it is impractical under routine conditions because it demands food and insulin in the middle of the night. An alternate method which is somewhat easier involves the injection of about four sevenths of the total daily insulin before breakfast, two sevenths before the evening meal, and one seventh about 3:00 a.m., all in the form of regular or crystalline insulin. This method also disturbs sleep and so is less desirable than the use of depot insulins with less accurate control. Unmodified in-

sulin usually is incapable of keeping the early morning sugar level normal, even without food, if none is taken during customary hours of sleep.

Insulin technics which involve injections during the night or more than twice daily are not tolerated by most patients except for short periods of time. It is necessary, therefore, in diabetes of such severity, to sacrifice accuracy of control to avoid intolerable inconvenience. Suitable insulins with intermediate time-action injected once or twice daily result in the smoothest control possible under conditions which can be tolerated constantly. Even so, minimal glycosuria often must be accepted in order to avoid insulin shock, and dosages which cause severe reactions reduced even though some glycosuria results. In principle, as much insulin with appropriate timing must be used as possible without hypoglycemia and in as few doses daily as possible without permitting excessive excretion of sugar. Glycosuria can be limited to some 20 grams daily by one of the methods outlined.

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A. M. A. TAKES ISSUE WITH FSA PREDICTION OF PHYSICIAN SHORTAGE

The Journal of the American Medical Association in its January 14 issue challenges a report of the Federal Security Agency predicting a shortage of physicians in 1960.

"The methods employed in this study are so unrealistic that the study adds nothing to the knowledge of the physician requirements of the American people now or in 1960," says the editorial.

FSA's report estimated that there will be 227,119 physicians living in the United States in 1960 and that this will provide 143 physicians per 100,000 population. In 1940, the report adds, there were 133 physicians per 100,000 population and 137 in 1949.

The report arbitrarily sets up three minimum measures of adequacy. On the basis of these, the 1960 shortage is estimated at from 17,413 to 45,053 doctors. It also cites a ratio of 149 physicians per 100,000 population in 1909.

"This compilation," says the editorial, "does not take into consideration, however, the fact that the earlier decrease in the physician-population ratio was the result of the closing of weak medical schools and 'diploma mills.' The significance of the term 'physician' with respect to training and ability differs so markedly today from the significance of the term in 1909 that any crude statistical formula invoked to compare or contrast the situation in the two periods must be rejected."

The editorial further says:

"It is difficult to forecast the national demand for physicians because it is practically impossible to estimate in advance the rapidity of technologic progress in the practice of medicine. Nevertheless, it is possible that there will be a surplus of physicians in 1960.

"During the 1940's a great increase in the number of auxiliary personnel, as well as improvements in therapeutic remedies, greatly enhanced the amount of medical service which any 1,000 physicians could render. The Bureau of Medical Economic Research of the American Medical Association has estimated that the increase in productivity per physician during the 1940's might have been as much as one third. If this rapid and widely recognized trend continues, it certainly seems more reasonable to expect a surplus than a deficit of physicians in 1960. Obviously a crisis in the health of the people does not now exist.

"In any event, physician-population ratios are not true measures of the demand or supply of physicians. The most important objective is raising the standards of performance in the medical profession. The number of physicians divided by the number of people and multiplied by 100,000 to obtain the ratio of physicians per 100,000 population certainly cannot be expected to provide a satisfactory guide to Congress or to the American people on the number of physicians needed. A satisfactory study would pinpoint the situation in every section of the United States."

FARM HEALTH TO BE TOPIC OF ANNUAL CONFERENCE

The fifth annual National Conference on Rural Health will be held in Kansas City, February 3 and 4. The meeting, held for the first time outside of Chicago, will be sponsored by the Committee on Rural Health of the American Medical Association in cooperation with national farm organizations.

More than 750 farm and health leaders—including representatives of health and farm groups, agricultural extension organizations, chairmen of state rural health committees, deans of medical schools, public health officials and others—will attend. They will be welcomed by Dr. George F. Lull of Chicago, secretary and general manager of the A. M. A.

Five principal points to be covered by the conference are: (1) rural medical facilities at the local level; (2) the relation of agricultural extension service to rural health problems; (3) community responsibility for health service in rural areas; (4) methods of prepayment for health services in rural areas, and (5) the responsibility of medical schools in the rural health program.

The general theme will be: "Let's Do Something About It." The keynote will be sounded by Dr. F. S. Crockett of Lafayette, Ind., chairman of the Committee on Rural Health, at the opening session which will be held in the Municipal Auditorium.

How to get medical care to rural people will be the subject of a panel discussion in the evening. Frank W. Peck of Chicago, managing director of the Farm Foundation, will be moderator.

Participants in the panel will be: Mrs. Charles W. Sewell of Chicago, administrative director of Associated Women of the American Farm Bureau Federation; Graham Davis of Battle Creek, Mich., director of the division of hospitals, W. K. Kellogg Foundation; Dr. J. R. McGibony of Washington, medical director and chief of the division of medical and hospital resources, U. S. Public Health Service; Roger B. Borbett of Washington, agricultural counsel for the National Association of Food Chains; Mr. Brandt; Dr. Murphy; Mr. Jones and Mr. Johnson.

The February 4 session will be held in the ballroom of the Hotel President. The morning will be taken up by reports of the chairmen of the discussion groups. These will be made by Mrs. Haven Smith of Chappell, Nebr., vice president of the Nebraska Farm Bureau Federation; Harry Reed of Lafayette, Ind., director of the extension service of Purdue University; J. S. Jones of St. Paul, executive secretary of the Minnesota Farm Bureau Federation; H. E. Slusher of Jefferson City, Mo., chairman of the medical care committee, American Farm Bureau Federation, and Dr. J. Murray Kinsman of Louisville, Ky., dean of the University of Louisville School of Medicine.

A general summary will be presented by Mr. Corbett.

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Hamblen, E. C.: North Carolina M. J. 7:533 (Oct.) 1946.

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*Perloff, W. H.: Am. J. Obst. & Gynec. 58:684 (Oct.) 1949.

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Clinical Conferences

TUMOR CONFERENCE

CHARLES ECKERT, M.D.: This is the first in a series of Tumor Conferences to be held at the Barnes and associated hospitals by staff members of the Washington University School of Medicine. In these conferences it is planned to discuss practical features of the management of neoplasms currently present in the hospital or the outpatient department. For this conference two cases of breast tumor, each presenting controversial aspects, will be discussed.

CASE REPORT

Case 1. A 26 year old white female was admitted to Barnes Hospital on September 12 complaining of an intermittent bloody discharge from the nipple of the left breast of eight months duration. At the time of onset the discharge was serous, occasionally brown in color, appeared for several days and then was absent for two months. This recurred without regularity up to the time of admission. In August 1949, for the first time, the discharge was bright red in color. The patient stated that pressure over an area of firm tissue inferior and medial to the nipple would result in the appearance of the discharge. No other masses had been noted.

The patient was a gravida III, para III but none of the children had been breast fed. No other complaints referrable to the breasts were present.

General health had been satisfactory without constitutional disease. No history of familial cancer could be obtained.

Physical examination revealed a young adult white female in good general health. Positive findings were confined to the breasts. The breasts were symmetrical, the nipples were everted, the areolae showed a moderate amount of brownish pigmentation. The parenchyma was nodular without distinct masses. In the region inferior and medial to the nipple on the left a placque like thickening of the parenchyma could be palpated and pressure on this area elicited a thin brownish discharge from the nipple. The quaiac test on this material was positive.

DISCUSSION

CHARLES ECKERT, M.D.: I would like to obtain from our consultants their ideas concerning the underlying pathologic condition and correct management in patients presenting themselves with this complaint. I will call on Dr. Carl Lischer to open this discussion.

CARL LISCHER, M.D.: First of all it should be remembered that under normal circumstances a woman one year following delivery and who is not nursing the child will not have a discharge from the breast. Furthermore, blood is not ordinarily present in the serous discharge which occasionally is seen in patients with simple cystic hyperplasia. The most commonly encountered lesion in the genesis of the bloody discharge is the intraductal or intracystic papilloma. This is a benign lesion. When palpable clinically it should be excised locally. If a tumor is not palpable, but if the discharge can be expressed by local pressure, a wedge shaped excision of the quadrant from which the discharge appears to arise should be carried out.

DR. ECKERT: Dr. Bartlett, in the event that accurate localization of the lesion is not possible, what is your decision?

ROBERT BARTLETT, M.D.: I think under those circumstances one is forced to do a simple mammectomy followed by thorough pathologic study of the specimen. It is my impression that those are potentially dangerous lesions; but one must also remember that a small percentage will have an intraductal carcinoma.

DR. ECKERT: Dr. Bartlett's opinion represents a prevalent attitude, but by no means is it the only possible course. Dr. Lischer will you state your opinion of this problem.

DR. LISCHER: I believe this is an unusual situation for, in my experience, one can almost always localize the area. It is helpful at times to insert a fine probe into the ducts as an aid at the time of operative exploration. In other cases the injection of radio-opaque material into the ducts with x-ray study may be of help. I have, however, had no personal experience with the latter. In my opinion mastectomy is too radical a form of treatment for an intraductal papilloma.

DR. ECKERT: Dr. Moore, have you any experience with the x-ray localization of intraductal lesions?

SHERWOOD MOORE, M.D.: No. And I have little confidence in the reports of the radiologists who have used such procedures.

LAUREN ACKERMAN, M.D.: One comment that somebody made about that procedure in intraductile papilloma was that it was like putting little ships into bottles.

DR. ECKERT: Rational therapy for this lesion can be given only if a knowledge of the life history is available. Some authors have emphasized the importance of bleeding from the nipple as an important sign in breast cancer whereas others have minimized it. For instance Semb[1] found that papilloma of the ducts, in a large number of cases, contained cancer or were suspected of incipient cancer development. Geschichter[2] mentions fifty-seven cases of bleeding from the nipple without palpable tumor followed for three or more years in which five developed mammary cancer. A causal relationship in these five cases is not definitely established. This illustrates in fragmentary way the confusing situation found in the literature.

I know that Dr. Ackerman has had considerable experience with this problem and also has some figures collected by Dr. Stout which he can show us. In your opinion, Dr. Ackerman, will a benign intraductal papilloma undergo malignant change with any degree of frequency?

DR. ACKERMAN: I think the chances that an intra-

From the Tumor Clinic, Washington University School of Medicine, September 13, 1949. Edited by Charles Eckert, M.D., and Lauren Ackerman, M.D.

ductal papilloma per se will undergo malignant transformation is extremely small. I have that answer not only on my own experience but on some recent follow-up studies made by Dr. Stout[3] on a rather large number of cases. Table I illustrates his findings. Of a total of 108 cases, 75 per cent were located centrally, 25 per cent peripherally. Nipple discharge was, of course, most prominent in the central group. The largest number of these cases were followed for five or more years. To date there are only three recurrences in the entire group. In these cases the question of whether these were the same papilloma or a new lesion is raised. I agree that local excision is the only indicated procedure.

Table I. *Intraductal Papillomas* (Stout)*

Age	Location	Nipple Discharge	Recurrence
19-82	Central 81 (75 per cent)	70	2
	Peripheral 27 (25 per cent)	8	1

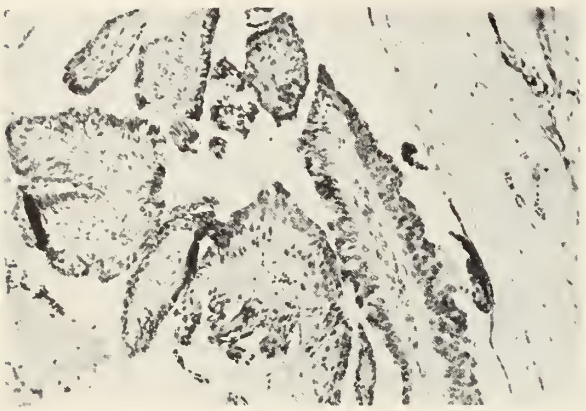


Fig. 1. Cellular intraductal papilloma growing within dilated duct. Note uniformity of the cells.

I want to make one more statement concerning bleeding from the nipple. It is frequently stated, as Dr. Eckert mentioned, that this is a common sign of cancer. I have found this to be true in less than 5 per cent of cases. In the overwhelming majority it is a sign of an intraductal papilloma.

Dr. Eckert: One would expect to be able to palpate a carcinoma producing bleeding from the nipple, would one not Dr. Ackerman?

Dr. Ackerman: One would expect to be able to palpate the carcinoma. I would like also to say in explanation for the discrepancies in the literature concerning this problem that the microscopic picture may be confusing. Under the microscope they may be quite cellular and may give a false appearance of invasion due to the technic in cutting the section. I think in many instances such lesions have been over diagnosed as carcinoma and placed in the literature as examples of cancer causing bleeding or as cured carcinoma when, in reality, they are perfectly benign, though cellular intraductal papillomas (fig. 1).

Dr. Eckert: In other words the pathologist who is unfamiliar with this picture may make an erroneous diagnosis.

Dr. Ackerman: He will over diagnose.

Dr. Bartlett: I would like to say that in recommending mastectomy I limit that to postmenopausal women.

Case 2. A 63 year old white female was admitted to Barnes Hospital on September 1, 1949, with the chief complaint of an itching ulcerated lesion of the left nipple and areola of two months duration. Since early childhood this patient had suffered from generalized eczema of variable severity. In the four or five years preceding the present illness this had not been noted. At the onset of the present difficulty the patient noted an itching sensation on the nipple of the left breast refractory to self treatment by various salves of unknown content. Finally crusting and superficial ulceration caused the patient to consult her physician who referred her for treatment. The patient was a gravida ō. No familial history of cancer was obtained.

Physical examination revealed an elderly white woman with loose skin, flabby musculature and excessive subcutaneous fat. The principle findings were related to the breasts. The breasts were pendulous and the right breast was somewhat larger than the left. The skin of the left nipple and areola was almost entirely denuded of epithelium, having a weeping, red, eczematoid appearance (fig. 2). No masses could be palpated in either breast. A soft node 1½ cm. in diameter was palpable in the left axilla. The right axilla and supraclavicular regions were normal.

X-rays of the chest showed no positive findings.

On the second hospital day a biopsy was obtained from the nipple and underlying tissues.

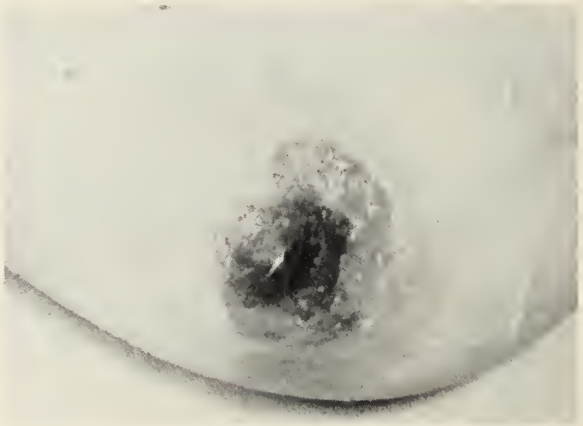


Fig. 2. Encrusted eczematoid lesion of the nipple, typical of Paget's disease.

Lauren Ackerman, M.D.: The biopsy of this lesion was a good one. It is important in such cases to take an incisional biopsy through the involved tissue, being certain to take a portion of the nipple as well as some adjacent normal skin. What one is looking for is, of course, the typical Paget cells, which were first described by Butlin. Paget cells are nothing more than carcinoma cells which can be identified as large cells with abundant cytoplasm. The nuclei may or may not show mitotic activity (fig. 3).

These cells are present within the epidermis; in

* Courtesy of C. D. Haagensen, M.D., Phillips, M.D., and Arthur Purdy Stout, M.D., Columbia University, College of Physicians and Surgeons, New York.

a properly prepared section showing the nipple with underlying ducts not infrequently the cells can be seen within the ducts. The prevalent opinion held today by most pathologists is that the tumor arises within a duct and secondarily involves the epithelium, rather than the reverse. In this case a diagnosis of Pagets disease of the nipple was made and a radical mastectomy recommended.

CHARLES ECKERT, M.D.: This theory is certainly the one most widely entertained today, but is not the only one. Will you say something about the other schools of thought?

DR. ACKERMAN: There are two other schools of thought I believe. The first of these is that such changes can exist without an underlying carcinoma. Well, I know that the Chinese wall exists, even if I have never seen it. But I have looked at a good many cases of Pagets disease of the breast, but I have never seen one thoroughly examined which failed to show an underlying breast carcinoma. One must realize that this lesion is not always palpable beneath the nipple, nevertheless, it is always present.

The second school of thought believes that the tumor is primary within the epidermis, secondarily invading the breast. I really believe, however, that neither of these theories is substantiated by the pathologic findings.

DR. ECKERT: It has taken considerable time and study to crystalize this subject completely. In this hospital today surgeons are agreed upon the proper course in this condition; not many years ago this was not the case. One example of this comes to mind in a woman without a palpable breast tumor, who, after biopsy, was treated by simple mastectomy. Pathologic study of the specimen did not show the underlying tumor. Within five years this woman was seen in the Tumor Clinic with proven axillary metastases, finally succumbing to generalized carcinomatosis. This is an example of clouded thinking for, obviously, the tumor was missed in the pathology laboratory.

Today radical mastectomy is performed when the diagnosis is made, as illustrated by this case. The postoperative course to the present has been uneventful.

RICHARD CARLIN, M.D.: How does the prognosis in Pagets disease vary from breast carcinoma in general?

DR. ACKERMAN: Pagets disease is relatively uncommon. Accordingly it is difficult to collect a series of comparably treated cases in sufficient numbers to be statistically significant. It is generally believed to be a relatively slowly progressing lesion with a good prognosis. I have on occasion seen extensive axillary metastases at the time of radical operation which, as one would expect, is associated with a poor prognosis.

DR. LITZOW: Dr. Eckert, in referring to this lesion beginning on the nipple rather than on the areola, did you mean that the reverse would mitigate against the diagnosis?

DR. ECKERT: Since the major ducts empty at the nipple, a carcinoma arising within the ducts, spreading along the ducts to involve the skin would therefore have to manifest itself on the nipple first, involving the areola secondarily. This factor, therefore, is of importance for a lesion arising on the areola would not likely be Pagets disease of the breast.

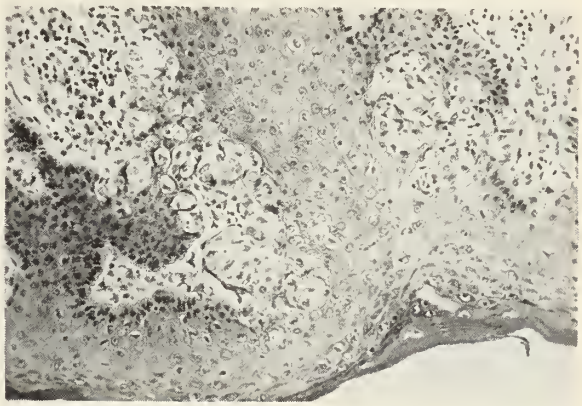


Fig. 3. Photomicrograph which demonstrates large Paget's cells within the epidermis of the nipple.

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TUMOR CONFERENCE

CASE REPORT

R. N., A 17 YEAR old white female, was in good health until February, 1949, when she bumped her right leg on a door. The injury was not severe but was followed by moderate pain and swelling. Instead of subsiding, however, these symptoms slowly increased until on August 25, 1949, she was admitted to the Barnes Hospital. Examination at that time revealed a smooth, rounded, moderately tender, fixed mass arising from the anterolateral aspect of the distal portion of the right femur. There was increased fluid in the right knee joint with slight limitation of motion. X-rays (fig. 1) of this region as well as of the chest were obtained. They were reported as showing a destructive process in the lateral aspect of the distal right femur. Calcification in the soft tissues at the periphery was present. In the opinion of the radiologist, the lesion was an osteogenic sarcoma.

The chest films show no evidence of metastases. On August 26, an incisional biopsy was obtained which was reported as showing an osteogenic sarcoma. On August 29 a disarticulation through the hip joint was performed. Postoperative course was complicated by a period of severe mental depression, which responded to psychotherapy. There is mild phantom pain.

CHARLES ECKERT, M.D.: Dr. Moore, would you like to comment on the x-ray films?

SHERWOOD MOORE, M.D.: There is an expanding lesion with destruction of the cortex involving the distal metaphysis of the femur. There is some sub-

From the Tumor Clinic, Washington University School of Medicine, September 29, 1949. Edited by Charles Eckert, M.D., and Lauren V. Ackerman, M.D.

periosteal new bone proliferation. These findings are characteristic of an osteogenic sarcoma.

Lauren V. Ackerman, M.D.: Would you tell something of the differential diagnosis of such a lesion? Could this be mistaken for infection, a benign tumor or another type of malignant tumor?

Dr. Moore: From an x-ray standpoint the differential diagnosis is not easy. In infection there should be far greater proliferation of bone without as much destruction. The area of bone involved would be the same.



Fig. 1. Radiogram which demonstrates an osteolytic lesion

In Ewings tumor the shaft is more commonly involved, the newly formed bone is parallel to the cortex giving the so-called "onion skin" effect. In an osteogenic sarcoma irradiating spicules of the newly formed bone are described. Unfortunately, none of these textbook pictures are commonly seen in clinical practice.

I should like to add also that pyogenic osteomyelitis, formerly so common, is infrequently seen in this X-ray Department at the present time. The commonest lesion of bone next to fracture is a metastatic carcinoma.

Dr. Ackerman: I think what Dr. Moore said is important. In my opinion periosteal bone proliferation is a nonspecific reaction to some stimulus. This may be inflammatory as in chronic osteomyelitis; it may be neoplastic as in primary malignant tumors or it may be reactive as in metastatic carcinoma.

Swenson[1] in Philadelphia has pointed out that the onion skin formation described in Ewings tumor was found in only four out of his twenty-six cases.

Dr. Eckert: Dr. Reynolds, what diagnostic procedure is next in order in such a patient?

Fred Reynolds, M.D.: It is an interesting intellectual exercise to speculate about the diagnosis of these tumors on the basis of either clinical or x-ray findings. The clinician who is alert will not allow himself to be misled by any incomplete study. In order to complete this workup a biopsy of the lesion should be taken. It would be an absolute error ever to attempt to treat any lesion suspected of being a bone tumor without a biopsy.

Dr. Eckert: It should be pointed out that while everyone on this panel is in agreement over the use of biopsy in these lesions, it was not long ago that the fear of dissemination of the tumor by the trauma involved in doing such a biopsy precluded a histologic diagnosis prior to definitive treatment. What is your opinion of this, Dr. Reynolds?

Dr. Reynolds: On theoretical grounds, it is possible that tumor cells may be forced into venous channels by the trauma of the biopsy. Proof of this is lacking. On the other hand the danger to the patient from incorrect diagnosis as a result of incomplete clinical study is great. Thus, amputations for benign lesions, for metastatic lesions or metabolic lesions have been done.

Dr. Ackerman: May I ask Dr. Moore his opinion of recent statements made by Dr. Brailsford,[2] an English roentgenologist, to the effect that radiographic study is accurate in bone tumors, more accurate in fact than is a biopsy?

Dr. Moore: Dr. Brailsford is a friend of mine and a brilliant man, but I cannot agree with that statement.

Dr. Ackerman: I certainly think that errors can be made in the pathologic diagnosis of bone lesions. The reasons for this are improper selection of tissue for biopsy by the surgeon, poor preparation of sections and, finally, the failure of the pathologist to correlate the clinical and x-ray findings with his section. If the correct area is selected, a good preparation is made and the pathologist has a good background in pathology, the chances of making a correct diagnosis are high.

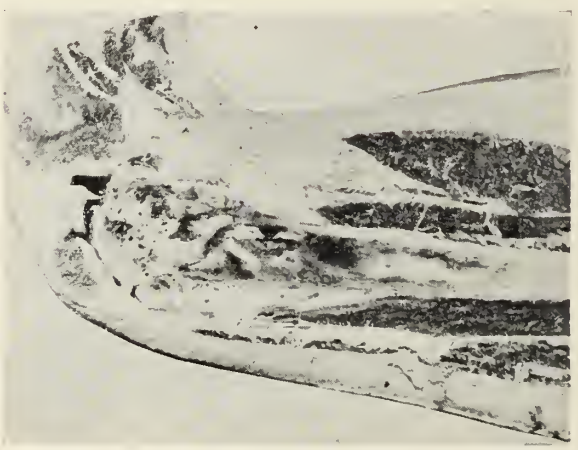


Fig. 2. Gross photograph showing tumor metapsyseal end of bone with periosteal bone proliferation and extension into the soft tissue.

The biopsy in this case showed an osteogenic sarcoma.

Dr. Eckert: The operation was performed three weeks ago, the wound is well healed, the patient is ambulatory on crutches and the phantom pain is

gone. A satisfactory mental adjustment is being made.

Dr. Reynolds, will you give your reasons for doing a disarticulation through the hip joint?

DR. REYNOLDS: I felt that any amputation through the femur would be unwise because of the impossibility of predicting how high the tumor had progressed up the medullary canal. The choice of operation lay between disarticulation through the hip or interinnomino-abdominal amputation. The latter operation although more radical would not increase the chance for survival. Leaving the pelvis intact is also superior cosmetically and functionally.

DR. ECKERT: Dr. Ackerman, will you describe the result of your examination of the specimen?

DR. ACKERMAN: The specimen is a characteristic one (fig. 2). There is tumor throughout the metaphyseal area spreading through the cortex and elevating the periosteum. The epiphysis is closed and has been invaded. It is unusual for an epiphysis which has not closed to be so affected because cartilage is a barrier to the spread of tumor. The joint space is involved by tumor secondarily rarely after fracture. The marrow cavity shows extension of the tumor, however, the exact extent is difficult to predict either by x-ray or gross examination. It is for this reason that more extensive procedures are advisable.

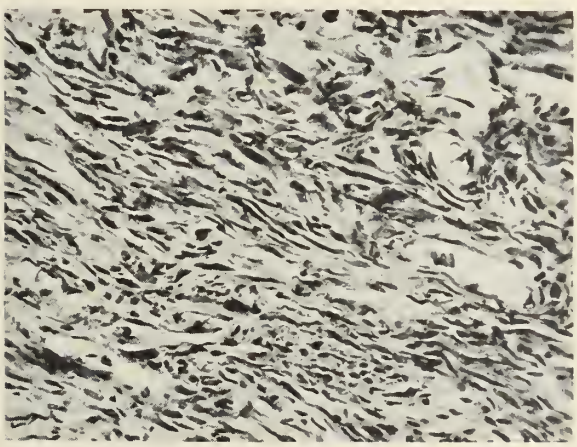


Fig. 3. Undifferentiated osteogenic sarcoma. Note sarcomatous stroma.

EDWARD REINHARD, M.D.: Is the spread up the medullary portion through venous channels?

DR. ACKERMAN: It is possible that spread through veins is the explanation, but it is more likely that the growth progresses in that direction because it is the pathway of lesser resistance.

Microscopically (fig. 3), the tumor shows bony trabeculae with sarcomatous stroma. In some areas there are zones in which the cells are undifferentiated, next to which are cells which are quite adult. Tumor giant cells are noted occasionally. Periosteal bone proliferation as seen in the x-ray is present histologically. It is this intermingling of different types of tissue which constitutes the familiar pattern of osteogenic sarcoma.

This type of tumor has a poor prognosis, less than a 5 per cent chance of surviving for five years.

DR. ECKERT: Dr. Ackerman, do you use the old tumor registry classification of osteogenic sarcoma?

DR. ACKERMAN: The bone tumor registry subdivisions can be frustrating. Furthermore, I feel that the various patterns which are seen are merely nuances of the major pattern. From a prognostic standpoint such variations are of little importance. The only subdivision which I attempt to make is when either a sclerosing or osteolytic process predominates. This differentiation makes little difference either, except insofar as the osteolytic tumor progresses more rapidly.



Fig. 4. Radiogram which demonstrates tumor extending out in the soft tissue and presenting spotty areas of calcification.

DR. ECKERT: Dr. Moore, will you tell us about the role of radiotherapy in this disease?

DR. MOORE: These lesions are not curable by radiotherapy because they are among the most radioresistant of tumors. From the standpoint of palliation, when pain is severe, considerable relief can be obtained from radiotherapy.

DR. ECKERT: In conclusion it should be emphasized that although the prognosis in this group of tumors is bad, the clinician must not adopt an attitude of complete defeatism. The occasional cure justifies the use of the most radical therapeutic measures.

CASE REPORT

C. R., a 34 year old white coal miner had been well until one year before admission to the hospital. At that time he developed pain in the region of the right hip unrelated to motion or trauma. Within two months the patient was able to feel a tender mass in this region. Swelling, pain and tenderness progressed. In July 1949, x-ray films and a biopsy were obtained; the diagnosis was chondrosarcoma. On September 14,

1949, a hemipelvectomy was performed. The postoperative course was complicated only by urinary retention.

Dr. Eckert: Dr. Moore, will you describe the x-ray findings (fig. 4)?

Dr. Moore: Examination of the pelvis reveals a large, soft tissue mass seen just superior to the right hip. The outline of this mass is faintly demarcated from the surrounding soft tissue. There is a



Fig. 5. Gross photograph which demonstrates the extension of the tumor into the soft tissue.

large amount of calcification seen within the mass. There is some destruction of the right ilium where the tumor is in juxtaposition.

The X-ray Department made a diagnosis of chondrosarcoma.

Dr. Reynolds: I felt this was a typical picture of chondrosarcoma. A biopsy was obtained which verified this and it again should be emphasized that no matter how typical may be the x-ray film, a biopsy must be obtained.

The chondrosarcoma is a relatively slowly progressing lesion which metastasizes at a later period in its development than does the osteosarcoma. While the opportunities to cure the tumor are greater than in the first patient, unless proper therapy is carried out the tumor will cause the death of the patient. Our experience with chondrosarcoma of the pelvis has been failure unless total removal of the tumor is carried out at the first operation.

Dr. Ackerman: The chondrosarcoma should be differentiated from the osteosarcoma because it has a different clinical evolution as well as a different microscopic pattern. The osteosarcoma may show areas of cartilage formation but there is always a malignant stroma in which the cartilage appears. In the chondrosarcoma the pattern is one of malignant cartilaginous tissue, occasionally adult bone, but never the same malignant stroma as seen in the osteosarcoma. Phemister[3] and Pendergrass[4] pointed out that patchy calcification, such as is seen in this case, often is seen in chondrosarcoma.

My feeling regarding therapy is in agreement with Dr. Reynolds' views. Any compromise with the radical removal of the growth is apt to be associated with local recurrence. When in doubt as to the advisability of any operative procedure, the more radical measure should be chosen. In reviewing the malignant cartilaginous tumors of the chest wall we[5] found that as a group they did rather poorly because of the limited surgery performed for their cure.

I would like to ask Dr. Reynolds why a portion of the right innominate bone was left behind as seen in the postoperative roentgenograms.

Dr. Reynolds: The technic which we have employed in this operation deviates from that usually described in that the gluteus maximum muscle is preserved on the flap. Because of this the sacroiliac joint cannot be exposed fully, thus accounting for the portion of the innominate bone left behind.

I do not believe, however, this will jeopardize the patient's chance of being cured.

Dr. Ackerman: The tumor grossly was found (fig. 5) to arise from the right ilium superior to the acetabulum. It has the appearance of cartilaginous tissue but is invading and destroying bone. An adequate margin of normal tissue appears to be present.

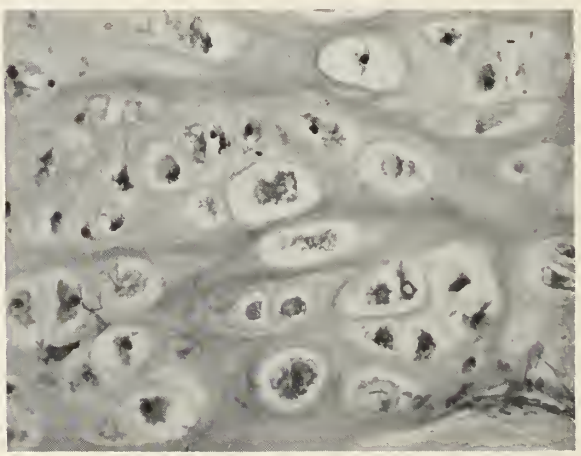


Fig. 6. Photomicrograph, chondrosarcoma. Note bizarre and giant nuclei.

Microscopically (fig. 6), the picture is that of cartilaginous tissue of variable cellularity. The cells are at first glance rather innocuous in appearance, but as they are scrutinized more closely one sees multinucleated forms, plump cells and abnormal nuclei. In many areas the uninitiated pathologist might be tempted to make a diagnosis of a benign chondroma. With multiple sections, prolonged study and familiarity with the course of these tumors one is not misled so easily. In the literature reference to a benign chondroma changing into the malignant variant frequently is seen. I do not feel this is correct for in my experience these tumors

are malignant when first diagnosed, but for the reasons given an incorrect diagnosis is made.

It also should be pointed out that Dr. Robert Ramsey in dissecting this specimen found benign osteochondromas of the tibia and fibula. Jaffe[6] pointed out the high incidence of chondrosarcoma occurring in cases of dysplasia. It is possible this represents a case of this sort, although this is conjectural.

DR. REYNOLDS: The postoperative course has been satisfactory, the patient is up on crutches with good stability. Prosthesis for this deformity is available but, as one can imagine, is not as satisfactory as those in which a stump is present.

STUDENT: Would someone comment on the role of trauma in the production of these tumors?

DR. ACKERMAN: Dr. Fred Stewart, the pathologist at the Memorial Hospital, once said, "If trauma is the cause of osteogenic sarcoma, one wonders after seeing little children at play, why they do not all develop osteosarcoma." Bones can be nailed with impunity, they are frequently broken, penetrated by bullets, but the incidence of sarcoma of bone is low. Careful analysis of data shows it to be difficult to establish a causal relationship between sarcomas and trauma.

DR. BEN EISEMAN: Will someone say something about Coly's toxins which were utilized at one time in the therapy of this disease?

DR. REINHARD: I have had no personal experience with this substance, but I am familiar with the literature on Coly's toxins as well as with some work going on in the National Cancer Institute at the present time relevant to this material.

About fifty years ago, Dr. Coly, of New York City, was stimulated to investigate this problem by the observation that patients with sarcomas who developed erysipelas sometimes showed a definite retrogression of the tumor. He then prepared mixed bacterial toxins from streptococci and bacillus prodigiosus and used this in the therapy of various sarcomas. The tumors all were biopsied and examined by outstanding pathologists of the day. Many of these patients showed improvement in their tumors and a few verified cases apparently were cured. The reason for discontinuing the use of this material lay in the rather drastic side effects as well as the unpredictableness of therapy.

Investigation of the mechanism of action on experimental animals has shown that a purified polysaccharide obtained from cultures of bacillus prodigiosus (Serratia marcesens) is capable of causing hemorrhagic necrosis in the central portion of tumors. Complete necrosis of the tumors is rare. This hemorrhagic necrosis is accompanied by pyrexia and a shocklike state which may even result in death of the animal. Dr. Shear[7] and his associates at the National Cancer Institute do not consider this material safe for clinical use at present. However, this work is still in progress and it is conceivable that some modification of this treatment eventually may be developed which will be therapeutically effective without being too dangerous to use on humans.

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REPORT NEW SURGERY TO SAVE CHILDREN FROM FATAL DISEASE OF PANCREAS

A new surgical procedure to save the lives of children afflicted with a hitherto uniformly fatal disease of the pancreas has been devised by three New Orleans doctors.

The operation, splanchnicectomy, involves cutting certain nerves just below the diaphragm. It is performed in conjunction with blocking of nerves in the same area by injection of procaine hydrochloride.

The doctors are William B. Ayers, Daniel Stowens and Alton Ochsner of Tulane University School of Medicine and the Ochsner Clinic. They report the procedure in the January 7 *Journal of the American Medical Association.*

The disease was first recognized in 1938, according to the doctors. Babies suffering from the disease characteristically develop pneumonia or other respiratory conditions at an early age. Nutritive difficulties in babies also are characteristic.

A 17 month old girl, identified only as G. G., had pneumonia at 5 months of age and during the following year had two severe infections of the upper part of the respiratory tract, the doctors say. She grew slowly and had a persistent cough.

After the operation and nerve block were performed, her appetite and general appearance improved and her difficulty in breathing disappeared. She was discharged from the hospital free of symptoms.

Three other children with the disease on whom the doctors performed the surgery and nerve block responded in a similar manner. A fifth child died of heart failure during the surgery.

NAME OF HYGEIA, HEALTH MAGAZINE, TO BE CHANGED TO TODAY'S HEALTH

A change in name to *Today's Health,* effective with the March 1950 issue, is announced in the January *Hygeia,* health magazine of the American Medical Association.

The masthead of the January number also carries for the first time the name of Dr. W. W. Bauer, Chicago, as editor, succeeding Dr. Morris Fishbein, Chicago. Dr. William Bolton, Chicago, is the new associate editor, succeeding Dr. Bauer. Ellwood Douglass will continue as managing editor.

Hygeia was established by the American Medical Association in 1923. Written for the layman, it has come to be one of the most widely quoted health education periodicals in the United States. There will be no change in fundamental policy under the new editorship or new name.



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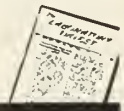
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Case Report

PRIMARY AXILLARY VEIN THROMBOSIS (EFFORT THROMBOSIS)

PHILLIP H. HALPERIN, M.D.
KANSAS CITY
AND
SIDNEY RUBIN, M.D.
KANSAS CITY

Thrombosis of the axillary vein was first clearly recognized as a clinical entity by Schrotter[19] of Germany in 1884. Since then more than 180 cases have been described and recorded. Many authors, Baum,[3] Gerard,[5] Gould[6] and Willan,[22] discuss this entity under the title of "Primary Thrombosis" to distinguish it from thrombosis secondary to a direct injury or a prevailing disease.

The case reported here followed an indirect trauma. It is being reported to emphasize its importance and to focus attention upon the fact that it is more common than generally realized.

The clinical manifestations of thrombosis of the subclavian and the axillary veins vary, depending upon whether the obstruction develops acutely or gradually. In cases of acute onset, pain is the initial symptom. The pain begins in the region of the shoulder and radiates downward toward the hand. This is associated with cyanosis of the extremity and coldness of the fingers. The latter symptoms are a consequence of vasospasm. Swelling of the arm and hand may occur rapidly even within a few hours. The veins of the dorsum of the hand and in the antecubital space are palpably distended. The initial pressure in these veins is generally high, about 300 mm. of saline, and rises to a higher level if measurements are being taken at the time the patient opens and closes the fist. The oxygen content of the venous blood in the involved extremity is decreased and the circulation time is prolonged. A venogram will reveal the obstruction and the extent of the involvement.

Thrombosis of the upper extremity is rather rare. Lubarsch states that 10 per cent of all thrombosis occurs in the upper extremity. The anatomic research of Lowenstein[12] and of Gould and Patey[6] clearly supports the theory of trauma by compression of the axillary vein between the subclavius muscle and the clavicle, first rib and costocoracoid membrane. Lowenstein[12] demonstrated the presence of a valve at the level of the upper surface of the first rib, posterior to and somewhat medial to the clavicle. By abducting the arm he showed that the lower border of the costocoracoid membrane exerted pressure upon the superior surface of the axillary vein. His conclusions were two-fold: that venous stasis was produced by forced expiration and by marked abduction or extension of the arm with lateral rotation. Gould and Patey[6] feel that rupture of the subclavian-axillary valve is another factor in the causation of thrombosis.

Thrombosis of the axillary vein may be secondary to other pathologic states; neoplasms of the chest, axillary metastases from breast carcinoma, tuberculosis, aneurysms, cardiac decompensation, and scar formations have been reported in this connection. Veal and Hussey[20] report eighteen cases of a total of forty-six to be secondary to neoplasm and sixteen to be secondary to congestive heart failure. In this series then, almost 80 per cent of the cases were secondary to either neoplasm or cardiac decompensation. In the latter condition it is rather surprising when one realizes that of more than 1,200 cases of postoperative thrombosis only 1.7 per cent of the cases occurred in the upper extremity. (Barker, quoted by Veal and Hussey.[20])

CLINICAL COURSE

This manifests itself by the sudden onset of pain in the arm, quickly followed by swelling of the extremity. Within a few hours the arm may be twice its normal size. Soon one notes prominence of veins over the shoulder and anterior chest. The veins of the antecubital space and of the dorsum of the hand are distended and palpable. The finger tips are cold and cyanotic. Palpation of the involved vein reveals a tender hard cord. Embolism practically never occurs in traumatic thrombosis. Following treatment collateral circulation becomes established and the swelling usually subsides in four or five days or at times more slowly.

CASE REPORT

A 32 year old white male, stated that a week prior to admission in June of 1946 he lifted his invalid mother into his automobile. Following this he noted sharp pain in the left mid-triceps region and across the point of the left shoulder. This pain lasted for from three to five minutes and then gradually subsided. Upon awakening the following morning he noted that his left upper extremity felt full. He was unable to flex the left elbow sufficiently to be able to tie his tie. As the day wore on he sensed a tingling of the fingers and noticed a purple discoloration of the hand. His past medical history was noncontributory.

Physical examination revealed prominent superficial veins of the anterior surfaces of the upper left arm and chest. The left biceps was tense and the circumference of the arm measured 13 inches; that of the right measured 11½ inches. The veins over the dorsum of the hand were distended. There was cyanosis of the hand and fingers. Tenderness was present high up in the left axilla. The blood pressure was 110/74. The heart was not enlarged; rate and rhythm were regular. A phlebogram showed obstruction of the axillary vein close to the head of the humerus.

Upon admission the left upper extremity was elevated and warm moist packs were applied immediately. On the following day a cervical sympathetic block using

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From Department of Surgery and Radiology, Menorah Hospital.
Diplomate American Board of Surgery.
Resident in Radiology.

30 cc. of 1 per cent novocain was performed through the posterior approach. The next day a block of the stellate ganglion was done using 20 cc. of 1 per cent novocain. By June 15, four days after admission, the edema had subsided completely. The patient was discharged seven days after admission and instructed not to do any lifting nor to indulge in any violent exercise. To date, a year later, there has been no recurrence of disability or swelling.



Venogram reveals collateral channels with absence of normal axillary vein outline.

DIAGNOSIS

It is clear from the previous discussion that before a case of primary axillary thrombosis is considered, secondary predisposing factors must be ruled out. Decrease of oxygen content of the involved segment and slowing of circulation time help to make the diagnosis. The diagnosis is confirmed by venographic studies in which the venous occlusion can be demonstrated clearly. Veal and McFetridge[21] first employed this procedure using thorotrast for their contrast medium. In 1938 Anderson[1] used uroselectan for this purpose and described normal venograms. The method has been used many times since. Some authors have criticized the use of these dyes because of their sclerosing properties and the occasional thrombosis induced by the injection.

PROGNOSIS

In primary axillary thrombosis the prognosis as to life is good. The duration of disability is variable. The patient may be completely restored in a month or two; but in many, if not the majority, the convalescence is prolonged. Relapse often accompanies persistence in the same occupation. Pulmonary embolism in an uncomplicated case is rare. Veal and Hussey[20] noted that in those cases secondary to cardiac decompensation, pulmonary embolism occurred in nine of sixteen cases, being fatal in seven.

TREATMENT

During the acute phase of the thrombosis, the arm should be elevated, and warm, moist compresses applied; active movement of the hand should be encouraged. The position of the arm should be changed from time to time in order to prevent fatigue and pain. Cervicodorsal sympathetic block is helpful in those cases in which there is evident vasospasm.

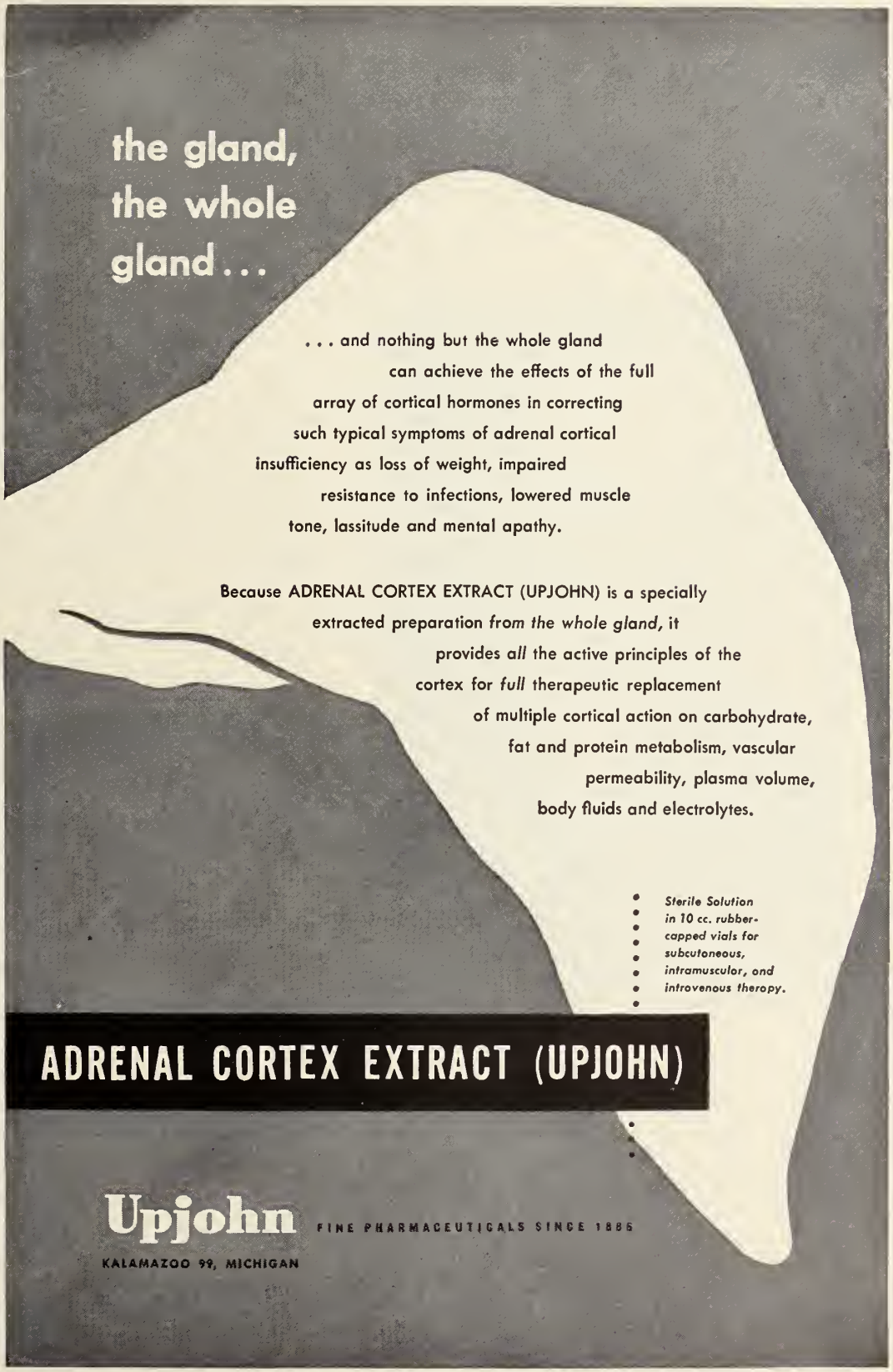
Because of the frequency of pulmonary embolism in cases of subclavian and axillary vein thrombosis complicating heart failure, it is suggested that the subclavian vein be ligated proximal to the thrombus. Such an operation is feasible because the subclavian vein can be exposed at the base of the neck under local anesthesia. The use of the anticoagulant drugs in this condition is an important adjunct in treatment especially in the face of secondary thrombosis due to cardiac decompensation.

CONCLUSION

1. The so-called axillary thrombosis of strain or effort is a complex syndrome of multiple causation.
2. Vascular reactions (signs of venous obstruction) and functional disability are out of proportion to the degree of trauma.
3. The treatment is dependent upon the etiology. Embolism in the face of cardiac decompensation probably calls for ligation of the subclavian vein.

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PRESIDENT'S PAGE

It is not too soon to make plans to attend the Annual Session of the Missouri State Medical Association. This meeting, as you know, will mark the 100th Anniversary of the founding of the Association.



Color television, which will be presented for the first time in St. Louis, will portray actual surgical operations at the time of performance as well as special medical clinics. Outstanding physicians from all over the country will take part in the scientific program.

Mr. Alex Dreier, well known radio commentator, will speak at the banquet. A history of the Association, written by our own Dr. Robert E. Schlueter, will be presented to all who attend.

Why not arrange for your hotel accommodations now?

Remember the dates—March 26-29, 1950.

Hotel Jefferson, St. Louis.

Centennial Meeting of Missouri State Medical Association.

Wallis Smith.

Editorials

ANNUAL SESSION

Plans for the 100th Anniversary Session of the Missouri State Medical Association are nearing completion. In addition to a program of carefully selected papers, color television will be used to bring the operating room and the diagnostic consultation room to the meeting hall of the session.

The "History of the Association" written by Robert E. Schlueter, M.D., St. Louis, will be presented to those in attendance at the Annual Banquet in Honor of Past Presidents. The "Handbook of the Missouri State Medical Association," including a roster and full information concerning members and much pertinent information for the medical profession, will be distributed at the Session. This is being prepared by a committee composed of H. E. Petersen, M.D., St. Joseph; Ralph E. Duncan, M.D., Kansas City; R. W. Kennedy, M.D., Marshall, and Frank W. Hall, M.D., Cape Girardeau.

Committee for the Annual Session follow:

General Committee on Arrangements: J. W. Thompson, M.D., St. Louis, Chairman; Otto W. Koch, M.D., Clayton; W. F. Francka, M.D., Hannibal.

Executive Committee: Robert Mueller, M.D., Chairman; Llewellyn Sale, M.D., and E. C. Ernst, M.D., St. Louis.

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Past Presidents' Banquet: Louis N. Berard, M.D., Chairman; Wendell G. Scott, M.D., and E. Vernon Mastin, M.D., St. Louis.

Reception: C. E. Hyndman, M.D., Chairman; Carl F. Vohs, M.D.; J. W. Thompson, M.D.; Robert Mueller, M.D.; Llewellyn Sale, M.D.; E. P. Buddy, M.D.; William E. Leighton, M.D.; E. C. Ernst, M.D.; Frederick E. Woodruff, M.D.; Joseph C. Peden, M.D.; Alphonse McMahon, M.D.; Curtis H. Lohr, M.D.; Neil S. Moore, M.D.; John C. Morfit, M.D.; F. J. V. Krebs, M.D.; Robert Moore, M.D., and Melvin O. Casberg, M.D., St. Louis.

THE FILTHY FEW

The editorial of this title is reprinted from *Northwest Medicine* in these columns because it emphasizes a serious dilemma for organized medicine which too frequently is ignored.

Attacks on the proponents of compulsory health insurance are justified so long as they remain factual and so long as organized medicine is sincerely cognizant of its own deficiencies.

One of the great practical considerations in rendering medical care is the fee and the discussion of the fee with the patient. By common consent, as it were, money usually is not mentioned by either the patient or the physician until after the medical service has been rendered. The physician feels that he should not mention the subject less the patient feel he is mercenary and the patient does not talk about the fee for fear the doctor will be offended.

Neither attitude is justified. Rendering care to patients today is certain to cost the physician money as well as time and energy. The patient, on the other hand, has obligations and expenses which will govern the amount he is willing and able to spend and he should know at least roughly what a given medical situation is going to cost him.

This leads to two thoughts which should aid in these situations. The first is a fee schedule which should be developed on a regional basis and made available for the guidance of both the physician and the patient of the particular community.

The second is a more frank and open discussion of what the cost of a particular illness will probably be and why.

It is difficult to imagine a physician charging patients ridiculous fees in proportion to income and it is equally difficult to believe that patients would assume such tremendous financial burdens knowingly.

There can be no doubt that a small group of men in the profession charge exorbitantly and that is certainly within their rights so long as they make the charge known before and not after the service is rendered.

The profession must take the editorial, "The Filthy Few" to heart and do something about it. Enlightened leadership at national and local levels coupled with firm disciplinary action should do a lot to stamp out the evils of gouging the sick public wherever and by whoever it is prepetrated.

The editorial follows:

"In any discussion of public relations, the generally accepted formula is x plus y. The first part indicates the quality of the product, and the other the public acceptance of the goods or services. In most discussions of medical public relations, we talk a good bit about y but seldom get around to any sort of analysis of the x. Perhaps the y might be less of a cause for sad concern if we did a little something on the x side.

"It is all very well to ponder on why the dirty so-and-sos who hold important national political offices show so much animosity toward the medical profession. It may be that they are evil-minded,

malicious, diabolic, heartless and stupid, but it is doubtful if calling them such will help in the reconstruction of our crumbled public relations. Indeed, such name calling is not only useless but is inaccurate. These, and others who hold public office are merely sensitive to the votes which put them there. If we wish to stop their attacks upon private enterprise in medicine, we must do so in the only way which works—through their employers, the voters. That means a public relations job.

"It is all very well to hire space in the public press with which to repeat what a terrible thing socialized medicine would be for this country and how excellently the voluntary plans are providing socialized medicine anyway. Such arguments and such advertising smack too much of the medical trust in the slush fund to convince a very large segment of the public. Advertising methods may work for the automobile industry and others who carry on sustained expensive programs. For the medical profession they are probably somewhat worse than useless.

"The real crux of the problem is that the public does not fully trust us to give them a fair break and that there is ample foundation for such mistrusts. True, it may be that the suspicion arises from the actions of only a small percentage of our numbers, but that is no excuse. True, also, maybe the statement that none so steadfastly refuse to take advantage of others when it would be so very easy to do so, or are so genuinely honest, sincere and trustworthy as the majority of the medical profession, but that does not solve the problem either.

"By what sort of advertising can you convince a reader that the present system is the best when that reader is a scrub woman earning $75.00 a month and under the system she has been charged $500.00 for a cholecystectomy? How do you suppose the G. I. is going to vote after he has lost his home, his car, his life insurance policy and finally his nine year old daughter, all to the tune of $1,100.00 to the hospital and $800.00 to the surgeon who did the first, unsuccessful operation? What would you do about the fireman's widow, living on a small pension, who had a sinus difficulty and was repeatedly told not to worry about the cost while going back for innumerable treatments and who finally received a bill for more than four hundred dollars? Do you think any of these people will fall for cleverly worded ads? And do you suppose that friends and acquaintances to whom they tell these true stories are going to be suffused with a glow of love and admiration for the grand profession of medicine?

"Such dirty business should have no place in a profession which chooses to call itself great and which, in the last analysis, is truly great in every way the word can convey a meaning. Certainly, a good man who has a foul, evil-smelling cancer cannot be condemned as bad because of it, even though his social acceptance may be impaired. His respected position in society may be steadily regained after radical surgery has cleansed him of the disease. The filthy few who ruin the x in our own public relations should likewise be cut out or otherwise controlled. It can be done and to do so would handsomely increase our acceptance back into the confidence of the public. But we will never do it as long as we continue to claim that all doctors are uniformly equipped with haloes and wings and that nary a one has a cloven hoof. Such kind of talk in any form is stuff and nonsense and the public knows it."

LOW LEVEL OF SOVIET MEDICINE ATTRIBUTED TO SHACKLING OF DOCTORS

The low level of medical care in the Soviet Union results from restraints on doctors, says an editorial in the December 24 *Journal of the American Medical Association.*

"Unfortunately for Soviet citizens, Soviet medicine does not appear to be as good as Soviet propaganda," the editorial points out.

"In fact, few factual data may be found published concerning the quality of Soviet medicine. Most evaluations outside the U. S. S. R. are based on observations of foreigners who have been in the country and on the reports of Soviet refugees.

"However, on rare occasions frank articles have appeared in Soviet periodicals. When the boasting is discounted and the facts critically examined, these articles reveal a disturbing state of affairs.

"Official statements said to be attributed to a Minister of Public Health revealed shortages of equipment in every medical field. Drugs were claimed to be often of poor quality, and their faulty distribution is said to have caused serious shortages. Medical clinics and institutions have increased in recent years, but rural areas, it is said, still are lacking even minimum medical care and large areas are practically without facilities for surgery.

"Physicians and nurses are reported to be poorly trained and to have few opportunities to specialize. Even the former Minister of Health admitted in some instances 50 to 75 per cent error in diagnosis, which, if true, is a sad reflection of the care available to the Soviet citizen.

"Apparently opportunities for advanced training and for personal advancement are hampered also by a shortage and the inadequate quality of medical publications and a limited circulation of those that are published. The ministry probably publishes fewer than thirty journals and only one, *Soviet Medicine*, is suited to the majority of practitioners. However, even the Minister of Health once admitted that few articles in *Soviet Medicine* were of interest to doctors.

"The former Soviet Minister of Public Health perhaps unknowingly revealed one of the basic reasons for the present level of Soviet medicine when he wrote that praise by the people of the Soviet Union is the highest possible honor and that attempts of Soviet scientists to gain recognition elsewhere lowered the honor and authority of these researchers.

"He warned, 'We shall have to help these scientists free themselves from this psychopathy and bootlicking of foreign things.' In the face of such twisted thinking Soviet physicians and researchers have limited opportunity to improve their lot and the health of the people in their country."

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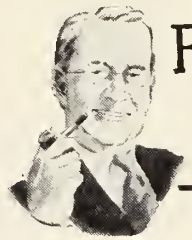
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From where I sit *by* Joe Marsh

Sure You Haven't a "Blind Spot"?

As I was driving down Main Street last Saturday, another car swung out right in front of me. It turned out to be Buck Blake. He wasn't going fast. It was just that he had something else on his mind at that particular moment.

Buck's really one of the nicest fellows I've ever known. But, sometimes he gets to day-dreaming on the road. He sort of gets a "blind spot" to what's going on about him!

Now, lots of normally considerate folks have their "blind spots." It could be anything from day-dreaming while driving a car to humming out loud at the movies.

From where I sit, it's mighty important to be on guard against your own "blind spots." The other fellow has a right to his "share of the road," too—whether it's having a taste for a temperate glass of sparkling beer or a desire to listen to some classical music if he wants to.

Joe Marsh

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NEWS

George A. Aiken, M.D., Marshall, spoke before the Marshall Rotary Club on December 1 on compulsory health insurance.

Vincent T. Williams, M.D., Kansas City, discussed socialized medicine at the Excelsior Springs Lions Club early in December.

Melvin A. Casberg, M.D., St. Louis, addressed a meeting of the Downtown Luncheon Group of the League of Women Voters of St. Louis on December 6.

John Paul Frick, M.D., Kansas City, recently was elected president of the Kansas City Dermatological Society, and David B. Morgan, M.D., Kansas City, was elected secretary-treasurer.

The annual meeting and banquet of the St. Louis City Hospital Alumni Association will be held on Wednesday, March 29, at the Jefferson Hotel, St. Louis.

The tenth annual Congress on Industrial Health of the American Medical Association will be held at the Roosevelt Hotel, New York City, February 20 and 21.

The Chicago Medical Society's 1950 clinical conference will be held February 28 through March 3 at the Palmer House, Chicago.

The following members were made fellows and associate fellows of the United States Chapter, International College of Surgeons, at the fourteenth annual meeting in Atlantic City, November 7 to 11: Drs. W. A. Bloom, Fayette; Karl D. Dietrich, Columbia; Winfred L. Post, Joplin; Vincent A. Schneider, St. Charles; Horace Arch Lowe and Walter R. Langston, Springfield; Phillip H. Halperin, Mark M. Marks, O. Jack Printz and Joseph A. Nigro, Kansas City; L. C. Boemer, C. H. Shutt, William H. Sinkler, Leo J. Hartnett, B. L. Sinner, Edgar W. Davis and Rubin Hackmeyer, St. Louis.

MUSINGS OF THE FIELD SECRETARY

Rural health is an item of major importance in the State of Missouri and considerable interest has been generated in its behalf over the last few years. It seems quite fitting and proper that the American Medical Association and the national farm organizations should have decided to stage the fifth Annual National Conference on Rural Health in Kansas City, February 3 and 4.

Here is a fine opportunity for physicians to find out first hand what rural people think about medical and other health services and a similar opportunity for the doctors to disseminate some enlightening information.

The icy weather conditions on the night of December 21 may have indicated hibernation but it did not stop the Lafayette County Medical Society from celebrating its 70th anniversary. However, those present, numbering sixteen, did have a bit of difficulty eating an honest-to-goodness celebration dinner prepared for fifty.

Hopes and plans are being fostered for the opening of the Lexington City Hospital in early February.

To their December dinner meeting the Charlton-Macon-Monroe-Randolph County Medical Society invited, in addition to members' wives, a number of prominent young men and their wives from Moberly. The attendance totalled sixty. This looks like good public relations for the profession and, incidentally, may be a way for the wives to pay back some of their social obligations. The program subject was of broad interest, "Atomic Medicine" and was superbly presented by Major G. M. McDonnell, M.D., U. S. Army Medical Department. Similar meetings for the future are already in the planning stage.

DEATHS

Harwood, Samuel R., M.D., St. Louis, a graduate of the University of the City of New York, 1888; member of the Henry County Medical Society; aged 83; died September 23.

Kirkpatrick, Harry E., M.D., St. Louis, a graduate of St. Louis University School of Medicine, 1903; honor member of the St. Louis Medical Society; aged 78; died November 3.

Cleveland, Andrew H., M.D., St. Louis, a graduate of the Boston University School of Medicine, 1910; honor member of the St. Louis Medical Society; Fellow of the American Medical Association; aged 66; died November 6.

Martin, Charles P., M.D., St. Louis, a graduate of St. Louis University School of Medicine, 1904; honor member of the St. Louis Medical Society; aged 69; died November 13.

Fuson, John Alva, M.D., Mansfield, a graduate of Barnes Medical College, St. Louis, 1905; member of the South Central Counties Medical Society; Fellow of the American Medical Association; aged 74; died November 15.

Beattie, Thomas J., M.D., Kansas City, a graduate of the Kansas City Medical College, 1886; honor member of the Jackson County Medical Society; Fellow of the American Medical Association; aged 86; died November 23.

Harrison, Addison M., M.D., Kansas City, a graduate of the Beaumont Hospital Medical School, St. Louis, 1892; honor member of the Jackson County Medical Society; Fellow of the American Medical Association; aged 82; died November 26.

Bankhead, Charles L., M.D., Paynesville, a graduate of Washington University School of Medicine, 1895;

honor member of the Pike County Medical Society; aged 81; died November 29.

Fredericks, Edward L., M.D., Manchester, a graduate of the National University of Arts and Sciences, St. Louis, 1918; honor member of the St. Louis County Medical Society; aged 65; died December 2.

Barnes, Ford A., M.D., Thayer, a graduate of the University of Louisville School of Medicine, 1910; member of the South Central Counties Medical Society; Fellow of the American Medical Association; aged 65; died December 10.

Esmond, Marie C., M.D., Kansas City, a graduate of the Southwest School of Medicine and Hospitals, Kansas City, 1905; member of the Jackson County Medical Society; Fellow of the American Medical Association; aged 66; died December 14.

MISSOURI STATE MEDICAL ASSOCIATION PROGRAM

100th Anniversary Session, Hotel Jefferson, St. Louis

The 100th Anniversary of the Association will be celebrated at the 92nd Annual Session to be held at Hotel Jefferson, St. Louis, March 26, 27, 28, 29, 1950.

PROGRAM

Monday, March 27, 1950, 8:30 a. m., Gold Room, Hotel Jefferson

8:30 a. m. Color Television. Surgical.
Cholecystectomy.
Repair of Ventral Hernia.
10:30 a. m. Intermission to View Exhibits.
11:00 a. m. Diabetes (definite subject to come), J. W. Conn, M.D., Ann Arbor, Mich.
11:30 a. m. Bronchial Obstruction Due to Endobronchial Lesions, Paul H. Holinger, M.D., Chicago.
1:30 p. m. Color Television: Medical.
Shock Therapy.
Rehabilitation.
Neurologic Examination.
Neurologic Demonstration.
Radioactive Isotopes.
Chest Diseases.
Cerebral Palsy.
Arthritis.
3:30 p. m. Intermission to View Exhibits.
4:00 p. m. House of Delegates.
7:30 p. m. Annual Banquet in Honor of Past Presidents, Mr. Alex Dreier, Chicago, speaker.

Tuesday, March 28, 1950, 8:30 a. m., Gold Room, Hotel Jefferson

8:30 a. m. Color Television: Surgical.
Resection of Colon.
Operation for Carcinoma of Breast.
10:30 a. m. Intermission to View Exhibits.
11:00 a. m. Prolonged Labor, Herbert E. Schmitz, M.D., Chicago.
1:30 p. m. Color Television: Medical.
Congenital Heart.
Jaundice.
Dermatitis.
Acute Poliomyelitis.
Peripheral Vascular Disease.
Heart Clinic.
Marrow Biopsy.
Endocrinology.
3:30 p. m. Intermission to View Exhibits.
4:00 p. m. Use and Abuse of Antibiotics Relating to Pediatrics, Panel Discussion.

Wednesday, March 29, 1950, 8:30 a. m., Gold Room, Hotel Jefferson

8:30 a. m. Color Television: Surgical.
Cesarean Section.
Operation for Pilonidal Cyst.
10:30 a. m. Intermission to View Exhibits.
11:00 a. m. Anesthesiology (definite subject to come). R. Charles Adams, M.D., Rochester, Minn.
11:30 a. m. Surgical Lesions of the Stomach, Warren H. Cole, M.D., Chicago.
1:30 p. m. House of Delegates.

MISSOURI SOCIETY OF MEDICAL TECHNOLOGISTS

The third Annual Session of the Missouri Society of Medical Technologists will be held March 26, 27, 28 and 29, 1950, at Hotel Jefferson, St. Louis.

Time and Place of Meetings

Saturday, March 25

7:30 p. m. Pathologists' Dinner. Madame Defoe's.

Sunday, March 26

12:30 p. m. Registration. Hotel Jefferson and DeSoto Hotel.
1:00 p. m. Dinner. Ballroom, DeSoto Hotel.
2:00 p. m. Business Meeting, Ballroom, DeSoto Hotel.

Monday, March 27

8:30 a. m. Registration. Hotel Jefferson.
9:30 a. m. Scientific Session. Room 1, Hotel Jefferson.
10:30 a. m. Intermission to View Exhibits.
11:00 a. m. Problem Clinic. East Room, Hotel Jefferson.
12:30 p. m. Luncheon.
2:00 p. m. Scientific Session. Room 1, Hotel Jefferson.
3:30 p. m. Intermission to View Exhibits.
7:30 p. m. Annual Banquet in Honor of Past Presidents, Missouri State Medical Association. Hotel Jefferson.

Tuesday, March 28

8:30 a. m. Registration. Hotel Jefferson.
9:30 a. m. Scientific Session. Room 1, Hotel Jefferson.
10:30 a. m. Intermission to View Exhibits.
11:00 a. m. Problem Clinic. East Room, Hotel Jefferson.
2:00 p. m. Scientific Session. Room 1, Hotel Jefferson.
3:30 p. m. Intermission to View Exhibits.
4:00 p. m. Problem Clinic. East Room, Hotel Jefferson.

Wednesday, March 29

8:30 a. m. Registration. Hotel Jefferson.
9:30 a. m. Problem Clinic. East Room, Hotel Jefferson.
10:30 a. m. Intermission to View Exhibits.

Scientific Program

Protein-Free Filtrates, Miss Betty Eickholt, B.S., M.T. (ASCP) Veterans' Hospital, Jefferson Barracks, Missouri.

Protein-free filtrates are the starting point for most biochemistry determinations as done routinely in a hospital or office laboratory. The selection, technic and difficulties encountered in preparing filtrates will be discussed.

The Frog Pregnancy Test, Miss Adela Martinez Guarjardo, Student in Medical Technology, St. Louis University, St. Louis, Missouri.

This discussion will include the following topics:

I. Use of the Rana pipiens frog
   A. Technic
      1) of injecting urine or blood into the frog.
      2) of collecting urine from the frog to determine the reaction.
   B. Care of frogs for clinical use.
   C. Significance of the frog test.
II. Mention of Xenopus laevis frog and toads.

Medical Technologists: Their Training, Sister M. Alcuin, M.T. (ASCP) College of St. Scholastica, Duluth, Minnesota.

This paper will treat of the present types of training of medical technologists, chief of which are the training that meets the minimum set down for certification by the Board of Registry of Medical Technologists of the American Society of Medical Technologists; and courses in which, concomitant with qualifying for certification, the candidate meets the requirements for a baccalaureate degree in some reputable college. The examination of curricula and the results attained by pursuance of such curricula will also be discussed. A brief summary about courses leading to advanced degrees will be included.

Problems in Blood Banking, R. O. Muether, M.D., Director of Laboratories, St. Mary's Group of Hospitals, St. Louis, Missouri.

The Rh Factor, Edith Potter, M.D., Department of Obstetrics and Gynecology, The University of Chicago, Chicago, Illinois.

Routine Urinalysis, Miss Frances Murry, B.S., M.T. (ASCP), Firmin Desloge Hospital, St. Louis University, St. Louis, Missouri.

This is an attempt at a critical evaluation of the various methods employed in routine analysis plus a short discussion on the importance of reporting complete and accurate findings and consequent responsibilities.

Liver Function Tests: Evaluation and Newer Concepts, Miss Marjorie Smith, M.T. (ASCP), Kansas City General Hospital, Kansas City, Missouri.

The Cephalin Cholesterol Flocculation, the Thymol Turbidity, and the Bromsulphalein tests will be evaluated and the newer concepts regarding these tests will be outlined.

Basal Metabolic Rate: Technical Problems Encountered, Miss Ellabeth Houghton, Barnes Hospital, St. Louis.

A presentation of some constructive "do's and don'ts" which are useful to technicians in the performance of basal metabolism tests will be given. Isolated cases and factors which will elevate or lower the BMR will be discussed.

Slide Demonstration of Cells: Normal Peripheral Blood, Pathological Peripheral Blood, and Bone Marrow Studies, Sister M. Leo Rita, SSM., B.S., M.T. (ASCP), St. Mary's Hospital, St. Louis.

Colored photomicrographs of blood and bone marrow smears taken at a magnification of 1125 times using Kodachrome, Ektachrome and Ansco films will be demonstrated. The value of these preparations in the comparison of various cell types will be discussed. The proposed new standard terminology as well as terminology previously employed will be used in designating the blood and bone marrow cells.

Routine Laboratory Diagnosis of Tuberculosis, Miss Alice Timpe, M.T. (ASCP), Kansas City General Hospital, Kansas City.

The routine laboratory procedure used at Kansas City General Hospital for treatment of sputum specimens will be discussed. This discussion will include the value and limitations of direct smears using choice particles as a means of concentration and method of concentration of cultures of sputum specimens.

The Iodometric Determination of Serum Diastase, Miss Hildegarde Kramer, Clinical Pathological Laboratories, St. Louis.

The iodometric determination of serum diastase by the Somogyi method will be described. Factors which influence diastatic activity will be reviewed, since control of these factors is necessary in order to obtain accurate and comparable results. Standardization of solutions and sources of error will be discussed. The range of normal values and values in certain diseases will be given.

Some Musts in Histological Staining Technic, Mrs. Chrystal Hamontre Clinesmith, Kansas City General Hospital, Kansas City.

A demonstration of some common errors in the routine Hematoxylin-Eosin staining procedure, and the devices developed at Kansas City General Hospital for avoiding such errors will be discussed.

Plasma Protein Determinations: An Analysis of Several Methods, Miss Betty Wesley, Snodgrass Laboratories, St. Louis City Hospital, St. Louis.

Although there has been little controversy among biochemists that the Kjeldahl method of nitrogen determination is the method of choice for the quantitative determination of proteins, this method often has been displaced by other methods which require less time and less rigorous chemical technic. Satisfactory agreement has been found between the macro-Kjeldahl technic and Weichselbaum's method for the determination of protein which is based upon a modified biuret reaction. There are a few instances such as traumatic shock, postoperative or burn cases, often accompanied by rapid and critical shifts of hemoconcentration, in which the estimation of plasma protein and hemoglobin by the copper sulfate method for the determination of the specific gravity of whole blood and plasma is of great value. However, because of poor correlation with Kjeldahl determinations in many instances, the copper sulfate specific gravity method should never be used in the laboratory for quantitative protein determinations.

SOCIETY PROCEEDINGS

FIRST COUNCILOR DISTRICT

DONALD M. DOWELL, CHILLICOTHE, COUNCILOR

Twenty-six physicians attended a ten counties joint medical dinner meeting at the Strand Hotel, Chillicothe, December 8, sponsored by the Carroll County Medical Society.

John H. Mayer, M.D., Kansas City, gave the scientific program, using as his subject "The Differential Diagnosis of Some Important Chest Conditions Encountered in General Practice."

Following adjournment of this meeting, the members of the Caldwell-Livingston Counties Society present held a short meeting of their Society for the purpose

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of electing officers for 1950 and for action on two applications for membership.

JOHN PLATZ, M.D., Secretary,
Carroll County Society.

EIGHTH COUNCILOR DISTRICT

W. S. SEWELL, SPRINGFIELD, COUNCILOR

Ozarks County Medical Society

The Ozarks County Medical Society met at the Missouri State Tuberculosis Sanitorium, Mount Vernon, on the night of December 13 for its last meeting in the year 1949.

A. J. Beatty, M.D., Kansas City, presented a fine paper on "The Treatment of Hyperthyroidism." An interesting and informative discussion followed the formal presentation of his paper.

KENNETH GLOVER, M.D., Secretary.

NINTH COUNCILOR DISTRICT

E. C. BOHRER, WEST PLAINS, COUNCILOR

Carter-Shannon County Medical Society

The Carter-Shannon County Medical Society met at the office of T. W. Cotton, M.D., Van Buren, with the following present: Drs. T. W. Cotton, Van Buren; R. I. Davis, Birch Tree; Harry Rollins, Winona; W. T. Eudy, Eminence.

Dr. Cotton read an interesting paper on "The Heart and Blood Vessels." The paper was discussed by all present.

The meeting adjourned at 5:30 p. m. to meet before the end of the year.

W. T. EUDY, M.D., Secretary.

TENTH COUNCILOR DISTRICT

FRANK W. HALL, CAPE GIRARDEAU, COUNCILOR

St. Francois-Iron-Madison-Washington-Reynolds County Medical Society

The St. Francois-Iron-Madison-Washington-Reynolds County Medical Society held its regular monthly meeting at 8:00 p. m., December 8, at the State Hospital No. 4, Farmington. Members present were Drs. S. C. Slaughter and W. H. Barron, Fredericktown; C. H. Appleberry and Byron Taylor, Flat River; Van W. Taylor, H. M. Roebber and M. T. Haw, Bonne Terre; G. L. Watkins, Sr., G. L. Watkins, Jr., S. A. Lanzafame, F. R. Crouch and E. F. Hoctor, Farmington; J. L. Foster, and H. C. Gaeve, Desloge; Dailey Appleberry, Rivermines; H. H. Cline, Piedmont; Ben Bull, Ironton.

A. C. Stutsman, M.D., St. Louis, spoke on "Diseases of the Ear, Nose and Throat of Common Interest." This was followed by a discussion.

Refreshments were served by the Woman's Auxiliary.

MARVIN T. HAW, JR., M.D., Secretary.

Ste. Genevieve County Medical Society

The Ste. Genevieve County Medical Society held its annual meeting at Sexauer Hall, December 14, at 8:30 p. m., with the president, A. E. Sexauer, M.D., presiding.

The minutes of the last meeting were read and approved.

The following officers were elected: President, A. E. Sexauer, M.D., Ste. Genevieve; vice president, C. J. Clapsaddle, M.D., Ste. Genevieve; secretary-treasurer, R. W. Lanning, M.D., Ste. Genevieve; delegate, A. E. Sexauer, M.D., Ste. Genevieve; alternate, R. C. Lanning, M.D., Ste. Genevieve.

The treasurer's report was read and approved.

The Society then considered the question of hyphenating with the St. Francois-Iron-Madison,Washington-Reynolds County Medical Society if agreeable to that Society and it was voted unanimously that the secretary proceed with correspondence necessary to that end.

R. W. LANNING, M.D., Secretary.

AMERICAN ACADEMY OF GENERAL PRACTICE

The second annual scientific assembly of the American Academy of General Practice will be held in St. Louis at the Kiel Auditorium, February 20, 21, 22 and 23. The first assembly, held in Cincinnati last March, was attended by more than 2,500 physicians and surgeons.

The four day program will consist of lectures by twenty-two outstanding clinicians from all parts of the country who will deliver papers of practical value to the urban and rural practitioner. Programs will be mailed to every physician in the United States and Canada.

The technical exhibit will consist of 161 booths featuring the latest products and services available to the medical profession. The scientific exhibits, more than thirty-five in number, also will be planned specifically for the general practitioner.

Hotel reservations may be made through the Hotels Reservation Bureau, A. A. G. P., 911 Locust Street, Room 304, St. Louis 1.

A. M. A. DUES

Dues to the American Medical Association, as established by the House of Delegates at the 1949 Interim Session, are explained in a letter to secretaries of state associations. The letter follows:

"The House of Delegates of the American Medical Association at its meeting in Washington, D. C., December 6 to 8, 1949, adopted amendments to the By-Laws of the American Medical Association whereby Division One, Chapter II, Tenure of Membership, has been changed to read as follows:

"Chapter II.—Tenure and Obligations of Membership; Dues

"Section 1.—When the Secretary is officially informed that a member is not in good standing in his component society he shall remove the name of said member from the membership roll. A member shall hold his membership through the constituent association in the jurisdiction of which he practices. Should he remove his practice to another jurisdiction, he shall apply for membership through the constituent association in the jurisdiction to which he has moved his practice. Unless he has transferred his membership within six months after such change of practice, the Secretary shall remove his name from the roster of members.

"Sec. 2.—Annual dues, not to exceed $25.00, may be prescribed for the ensuing calendar year in an amount recommended by the Board of Trustees and approved by the House of Delegates. Each active member shall pay said annual dues to his constituent association for transmittal to the Secretary of the American Medical Association.

"An active member who is delinquent in the pay-

ment of such dues for one year shall forfeit his active membership in the American Medical Association if he fails to pay the delinquent dues within thirty days after notice of his delinquency has been mailed by the Secretary of the American Medical Association to his last known address.

"Any former member who has forfeited his membership because of being delinquent in payment of dues may be reinstated on payment of his indebtedness.

"You will note that the following important changes have been made:

"(A) The word 'Dues' has been added to the title of Chapter II.

"(B) Chapter II has been divided into two sections.

"(C) The first sentence of Chapter II, which read, 'Membership in this Association shall continue as long as a physician is a member of a component society of the constituent association through which he holds membership,' has been deleted.

"(D) The words 'of the American Medical Association' have been added after the word 'Secretary' where clarification is necessary.

"(E) The sentence, 'An Active member shall pay dues or assessments as may be prescribed by the Constitution or By-Laws.' has been deleted.

"(F) The words 'in the American Medical Association' have been added after the words 'shall forfeit his active membership' in the second paragraph of Section 2.

"(G) The sentence forming the third paragraph of Section 2, with regard to reinstatement, is a new addition to Chapter II.

"(H) A new paragraph, forming the first paragraph of Section 2, providing for annual dues not to exceed $25.00 has been added to Chapter II.

"The House of Delegates, on recommendation of the Board of Trustees, set the membership dues for the year 1950 at $25.00.

"The full effect of the new provisions will have to be studied and developed during the next year. However, the following interpretations of the amended By-Laws are offered for your guidance at this time:

"(a) Active membership in the American Medical Association will continue to be limited to those members of constituent associations who (1) hold the degree of Doctor of Medicine or Bachelor of Medicine, and (2) are entitled to exercise the rights of active membership in their constituent associations as provided in Article 5 of the Constitution of the American Medical Association.

"(b) A member of the American Medical Association shall lose his membership in the Association when the Secretary of the American Medical Association is officially informed that a member is not in good standing in his component society *or is delinquent in the payment of the American Medical Association dues established by the above change in the By-Laws.*

"(c) Forfeiture of membership in the American Medical Association due to failure to pay dues will have no effect on membership in the component or constituent medical societies unless the component or constituent societies amend their respective constitutions and by-laws. It is, therefore, possible that a physician may be a member of his component and constituent societies and at the same time not be a member of the American Medical Association.

"(d) The amended By-Laws provide for the collection of the American Medical Association membership dues by the constituent associations for transmittal to the Secretary of the American Medical Association. The detailed method to be adopted by each constituent association will vary in each state. In general, the method utilized by each state for the collection of its own component and constituent association dues should be followed.

"Some of the problems involved in the collection and transmittal of dues will be considered in a later communication to you.

"It is planned to provide each member of the American Medical Association a membership card and certificate of membership when his dues are paid.

"It will be necessary for the Secretary of the American Medical Association to notify those members who are delinquent in the payment of their dues, and this office will, therefore, require a complete list of all active dues paying members.

"No changes have been made in the Constitution and By-Laws of the American Medical Association with respect to Fellowship. Eligibility for Fellowship and annual Fellowship dues of $12.00 remain the same. Under the present By-Laws a Fellow will pay for the year 1950 total membership and Fellowship dues of $37.00.

"The following members may be exempted from the payment of the $25.00 American Medical Association membership dues: retired members; members who are physically disabled; interns, and those members for whom the payment of such dues would constitute a financial hardship.

"No member should be exempted from the payment of his American Medical Association dues who is not exempted from his component and constituent society dues."

FARM GROUPS IN BLUE SHIELD

A survey was made recently by the Missouri Farm Bureau Federation of the members of that organization who have received benefits under the terms of their Blue Shield medical care contracts. The resultant report to their members, "What Value Is Blue Shield to Farm Bureau Members?" follows:

Many members wonder if membership in the Blue Shield is really worthwhile. The Blue Cross hospital service has proven itself to be of great benefit in paying unwelcome hospital bills as attested by the more than 50,000 Farm Bureau people who are enrolled in the county Farm Bureau units. There are slightly more than 12,000 enrolled in the twenty Blue Shield units but many members, especially in the county Farm Bureaus which have not started their initial units for the doctor bill paying service, really wish information as to whether, if they belong to Blue Shield, the service will be equally as good as the Blue Cross.

The Blue Shield had to be established and operated in a manner different than Blue Cross. The hospitals usually charge about the same, rich or poor, for the same service rendered. A bed costs so much, the operating room charge is so much, the meals are so much, medicines and serums are the same. In establishing the Blue Cross, it was comparatively simple to agree upon a standard cost per day for services and so the Blue Cross is a service organization, paying so much for any and all members, no matter who they may be. The fee for service used by doctors ever since the medical profession first began, back to ancient times, has always taken into consideration the person's ability to pay and the varying seriousness of any ailment or

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When the Blue Shield was established, it was necessary to agree upon a fee schedule to be paid for certain operations and treatments, which was done by the Missouri medical profession but it had to be agreed also that such schedule could not be made binding upon any physician. Therefore, the Blue Shield is an indemnity service in which certain sums are paid to doctors for certain treatments or operations but any doctor may make further charge if he so desires.

We wish to be able to tell prospects as to what they may expect to receive as members of the Blue Shield. The true method is to have those who have used the Service to tell other members of the return made when the Service was actually used. We sent a letter to the members who had actually used the Blue Shield in last September and October, 268 in all, asking them questions as to what the doctor charged, how much of the bill the Blue Shield paid, how much the person paid extra and whether the physician used was a specialist or a general doctor. We received good response to the letters and we are giving some averages for use in demonstrating to all members what they may expect if the Service is actually used.

Regular Physician vs Specialist

Of the entire number of cases, 55 per cent used their own home town physician and received 88 per cent of the entire doctor cost. Only 12 per cent said that they paid their physician extra over and above the payment received by the doctor from the Blue Shield. Most of these extra payments were small.

The specialists treated 45 per cent and 36 per cent reported that they paid the specialist extra fees over and above the regular schedule. Some of the total bills ran over $500.00 for a single case. As a whole, these 45 per cent had 46 per cent of the total charge paid for them by the Blue Shield.

Size of Fee Charged

The replies were divided into four classifications as to size of fees charged by the attending physicians and surgeons. The first group of 30 per cent were charged not to exceed $25.00. Nineteen per cent of these were charged small extra fees by their doctors but the group as a whole received payment by Blue Shield on their bills of 93 per cent. The average bill was $15.00 and Blue Shield paid $14.00 of it.

The second group were those who were charged from $25.00 to $100.00 by their doctors, and 37 per cent of all cases were in this group. Fifty-three per cent paid small extra charges but as a whole, 84 per cent of the entire doctor bill was paid by Blue Shield. The average charge was $60.00 and the Blue Shield payment was $51.00

The third class were those who received charges from $100.00 to $200.00 and numbered 21 per cent of the entire number for the two months. Ninety-two per cent of these paid something extra to their doctor but as a whole, Blue Shield paid 60 per cent of the total bill. The average fee for this class was $150.00 and Blue Shield paid $90.00 of the bill.

The fourth class comprised those who had serious operations, with fees running from $200.00 and up, some as high as over $500.00. There were 12 per cent of all cases within this class and all paid extra fees to their surgeons. As an average, Blue Shield paid 36 per cent of the bills. The average fee charged was $308.00 and Blue Shield payment was $100.00

As a summary, 88 per cent of all the replies indicated that the Blue Shield paid from 60 to 93 per cent of the doctor bill, which we would expect to be of material aid to the members. Even a one hundred dollar payment on a big surgical operation is of considerable aid.

Additional Payments by Blue Shield

We would like to emphasize that in addition to the payment of these doctor bills as indicated, the Blue Shield paid for anesthesia for operations, for x-rays in accident cases, for basal metabolism tests, for electrocardiographs, for physiotherapy and for pathology costs in the hospitals for all of the cases requiring such additional medical aid. These bills were paid over and above that paid to the physicians directly.

It also must be remembered that the Blue Shield pays the doctor directly and hence no member has to pay the entire bill out of his or her pocket and then wait for reimbursement.

TUBERCULOSIS ABSTRACTS

Issued Monthly by the National Tuberculosis Association

EFFECTIVE NURSING CARE FOR THE TUBERCULOUS

Throughout the field of nursing there is a deficit of workers, and nursing needs have increased in spite of lower death rates, longer life expectancies, and a healthier population. The increase in population, with more people in older age groups, the higher standards of living, and the expansion of medical prepayment plans, have swelled the demand for hospital beds.

An acute deficit of nurses exists in the field of tuberculosis which still accounts for more than 5 per cent of all the days spent in hospitals in this country. In 1948, more than five thousand graduate nurses, and almost twice as many non-professional auxiliaries were employed to care for patients with tuberculosis.

Unfortunately, many hospitals are so badly understaffed that nurses cannot give time to the niceties of care. Tuberculosis, because it is chronic and communicable, is a serious dislocation in the life of a patient. In addition to medical treatment, a patient in a hospital needs to have a sense of being cared for without strain and worry, but today, a nurse is often too rushed to give the care which will foster this sense. If the pressure and haste, the mechanization of nursing, can be eliminated, many more young women will wish to enter the profession.

In tuberculosis hospitals, the nurse is likely to be even more pressed for time than in general hospitals.

Effective Nursing Care for the Tuberculosis, Chesley Bush, M.D., Esta H. McNett, R.N., B.S., Lucile Petry, M.A. and Martha B. Naylor, R.N., B.S., Public Health Reports, August 5, 1949.

The recommended standards for nursing services in tuberculosis hospitals has long been the following: 3.3 bedside nursing hours per 24 hours per bed-surgical patient; 2.7 bedside nursing hours per bed-medical patient; 1.5 bedside nursing hours per semi-ambulant patient; 0.5 bedside nursing hours per ambulant patient. In practice, almost no tuberculosis hospital has been able to employ enough nurses to meet such a standard.

One source of a nurse's satisfaction in her work has always been the sense of sharing the scientific understanding and confidence of the doctor in the treatment of the patient. The doctor who makes the nurse a member of the medical team, who gives her respect and consideration, who is aware of her contribution, and gives her recognition, helps to make nursing a more attractive profession.

Salary is not the nurse's primary consideration. Yet it should be mentioned that nurses's salaries have not risen in relation to the cost of living, and tuberculosis hospital salaries have not kept pace with gradual increases in salary scale in general hospitals.

A more careful observance of safe techniques in guarding tuberculosis nurses against infection will undoubtedly attract more women to this branch of nursing. Before being assigned to a tuberculosis service, a nurse should have a general physical examination, a chest X-ray, and a tuberculin test. Each of these procedures should be repeated at intervals. Many authorities also recommend BCG vaccination for nonreactors to tuberculin. But few tuberculosis hospitals give nurses routine preemployment physical examinations, and some even omit tuberculin tests, although pre-employment x-ray is almost universal.

Nurses assigned to tuberculosis services after passing a physical examination with a chest x-ray, must be protected on the job. Wherever better care of tuberculous patients has been demonstrated, and better protection for workers has been made easily accessible, it has become easier to recruit and retain personnel.

Improvements in recreation and transportation can also help to increase the inducements of tuberculosis nursing. The trend toward building new tuberculosis wings and hospitals close to general medical facilities will undoubtedly make it possible for additional nurses to enter tuberculosis nursing.

More students will also enter tuberculosis nursing if they receive better instruction and are provided with a safer environment in which to practice. In 1946, only 24 per cent of all schools of nursing offered clinical experience in tuberculosis.

There is an increasing acceptance of minority groups and of men in nursing schools and in the profession. If tuberculosis nursing is made attractive enough, it will draw its share of both sexes and from minority groups.

Up to now there has been almost no systematic analysis of the jobs to be done in a tuberculosis hospital. The present haphazard job "system," with overlapping duties for graduate nurses, practical nurses, aides and orderlies, leads to inefficiency. *Job analyses are urgently needed.* Every hospital should try to use the talents and training of its workers as efficiently as possible.

What then can be done to increase the number of nurses for tuberculosis nursing services in the United States? As has been pointed out, many positive steps can be taken: increasing job satisfaction, better precautions against infection, better instruction of nurses and auxiliaries in tuberculosis nursing, salary adjustments, better hours, increased employment of members of minority groups, job analyses, better utilization of time.

Although it is not inevitable that nursing care will become better as the number of nurses increases, yet the quantity of nurses is considered one index of the quality of patient care. If our society can provide enough nurses to staff its hospitals adequately, each nurse will strive to give the kind of patient care for which she has dedicated herself to her profession. Tuberculosis hospitals, if they keep pace with developments, will share in the improvement of nursing services everywhere.

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Entered as second-class matter, February 18, 1925, at the Post Office at Fulton, Missouri, under the Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Section 1003, Act of October 3, 1917, authorized July 30, 1918. Printed by The Ovid Bell Press, Inc., Fulton, Missouri.

Address all communications to The Journal of the Missouri State Medical Association, 623 Missouri Theater Building, 634 North Grand Avenue, St. Louis 3. Telephone: Newstead 0404-0405.

Subscription: $3.00 per year; 40 cents per copy.

CONTRIBUTIONS

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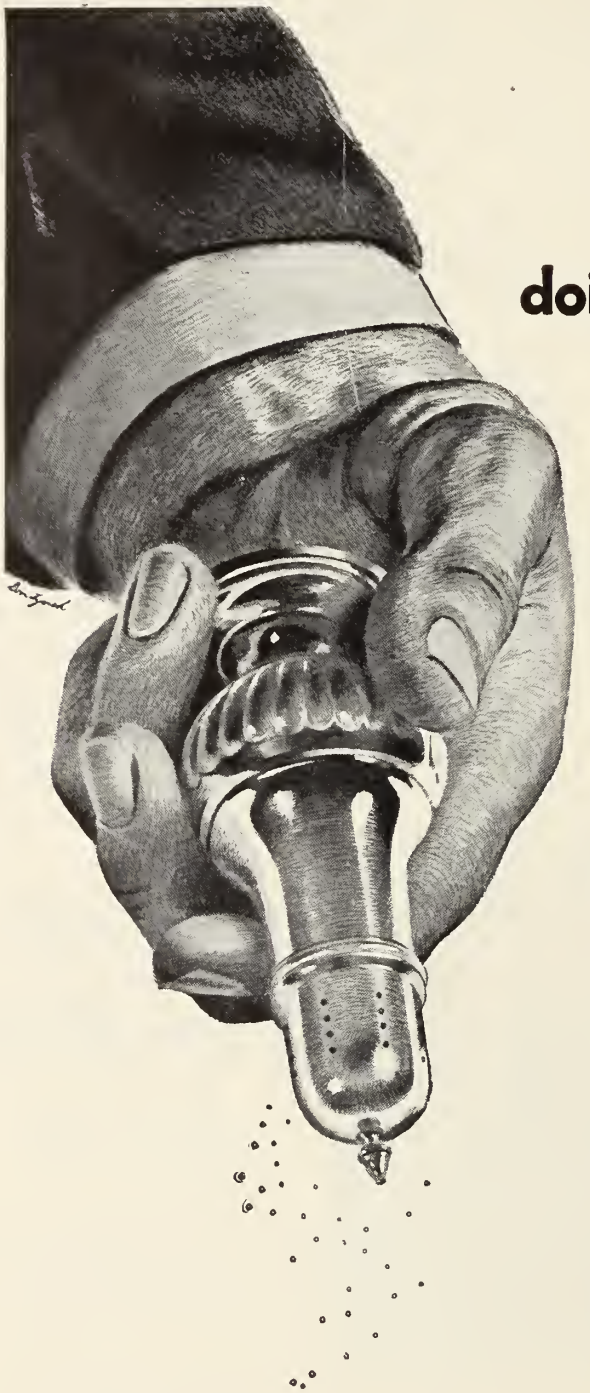
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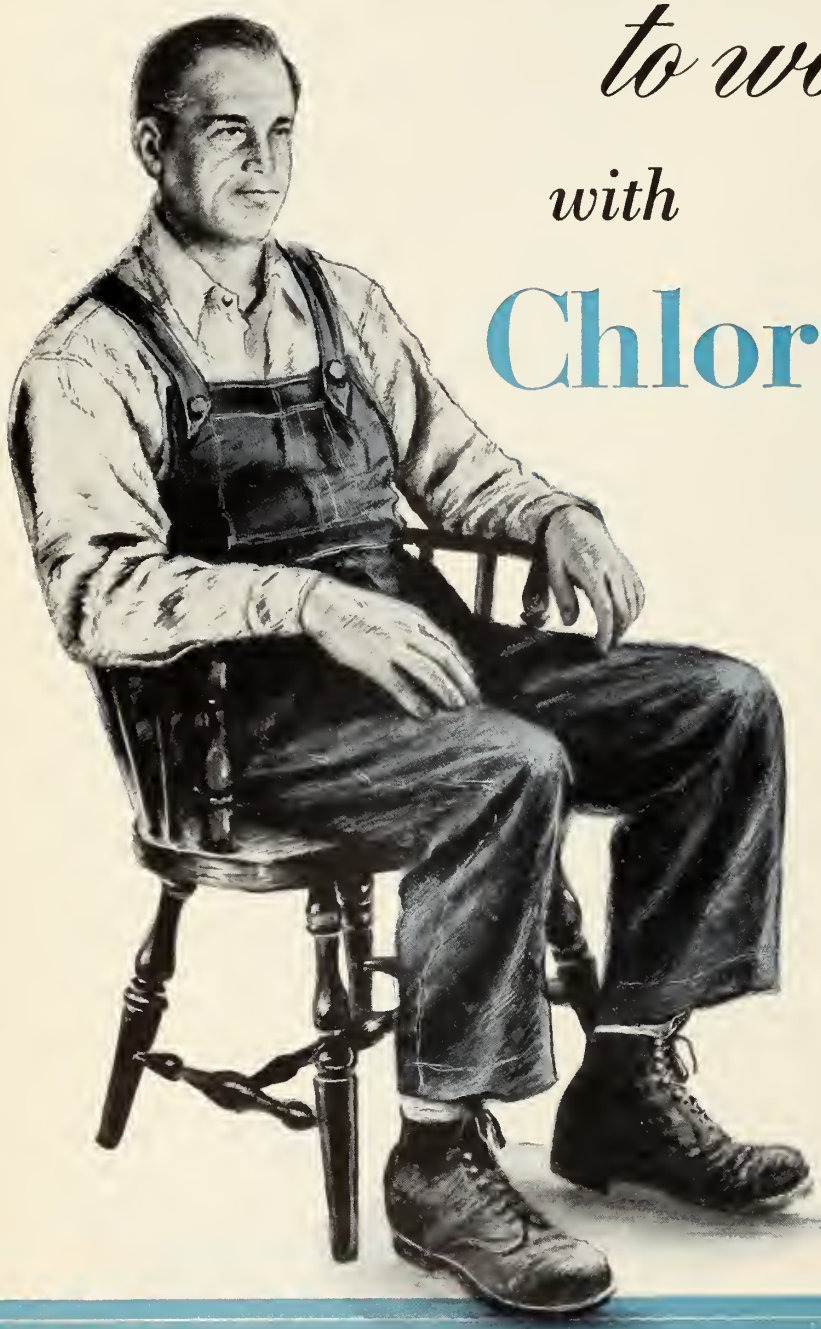
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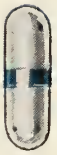
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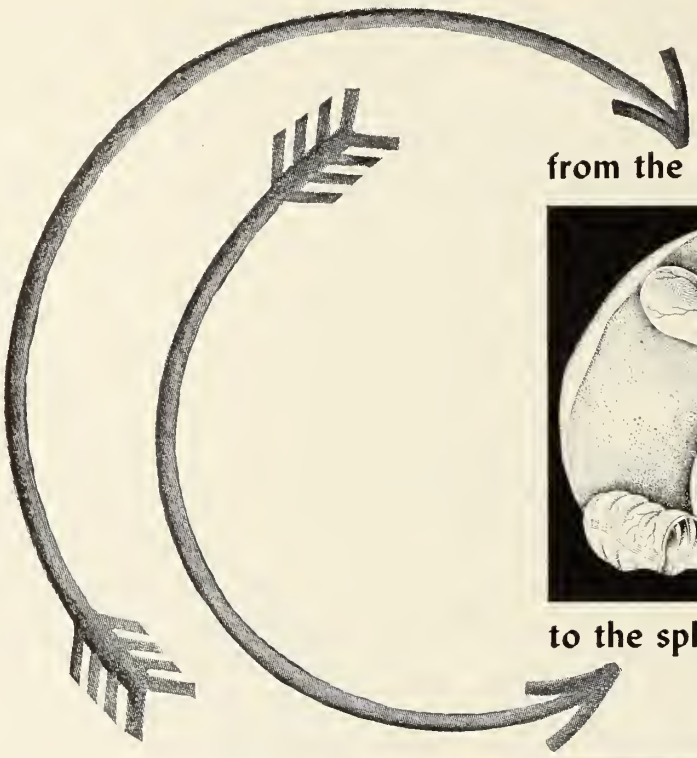
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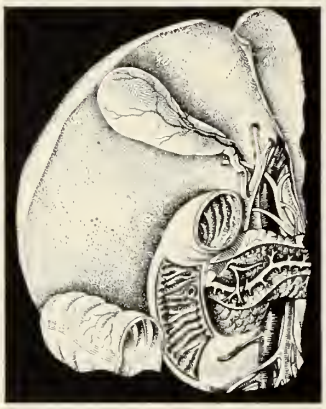
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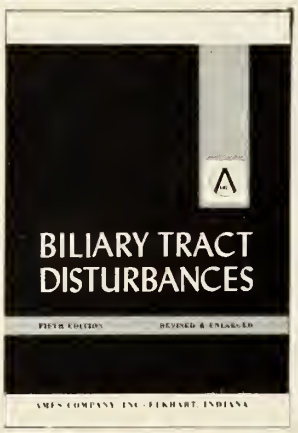
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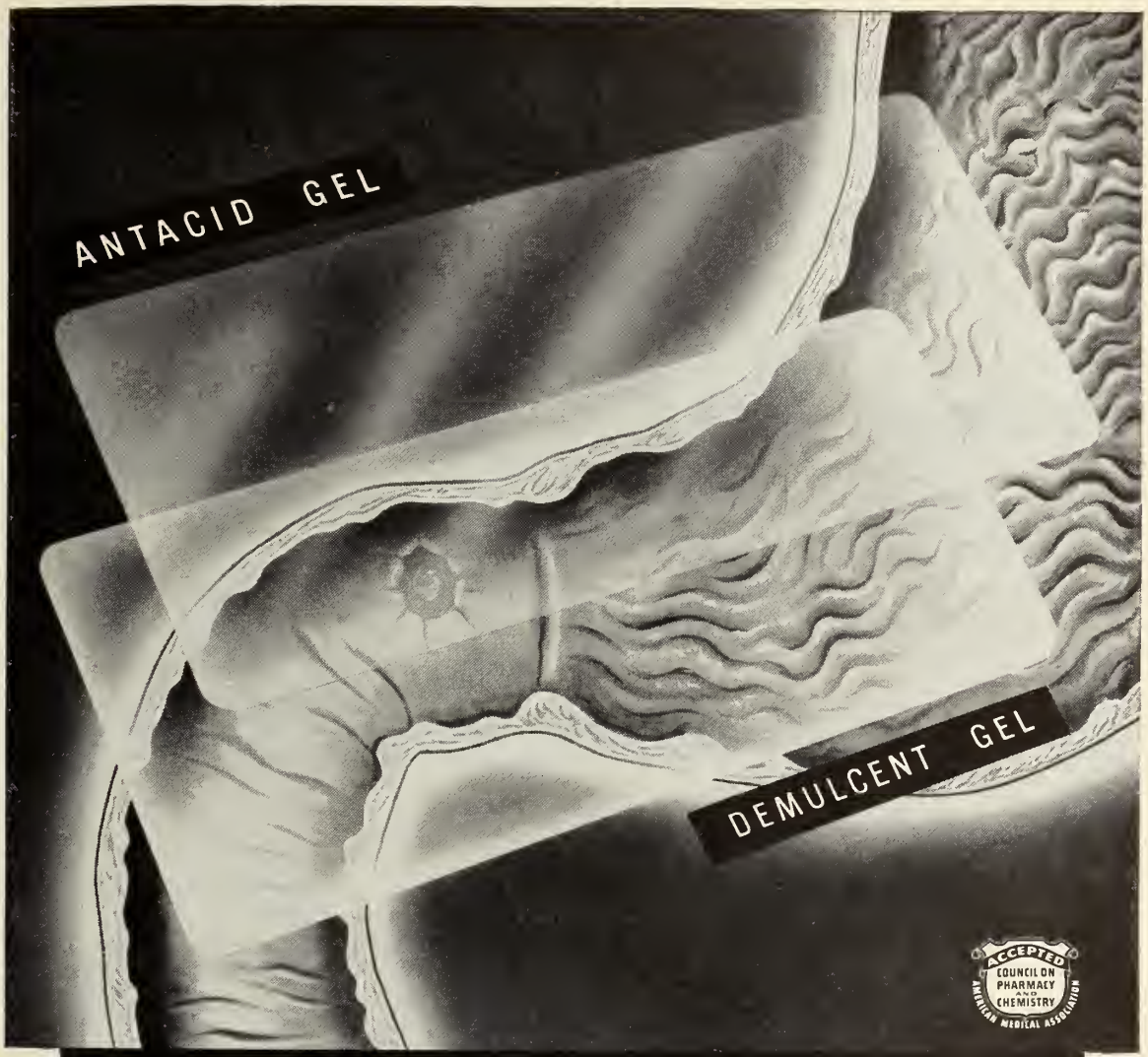
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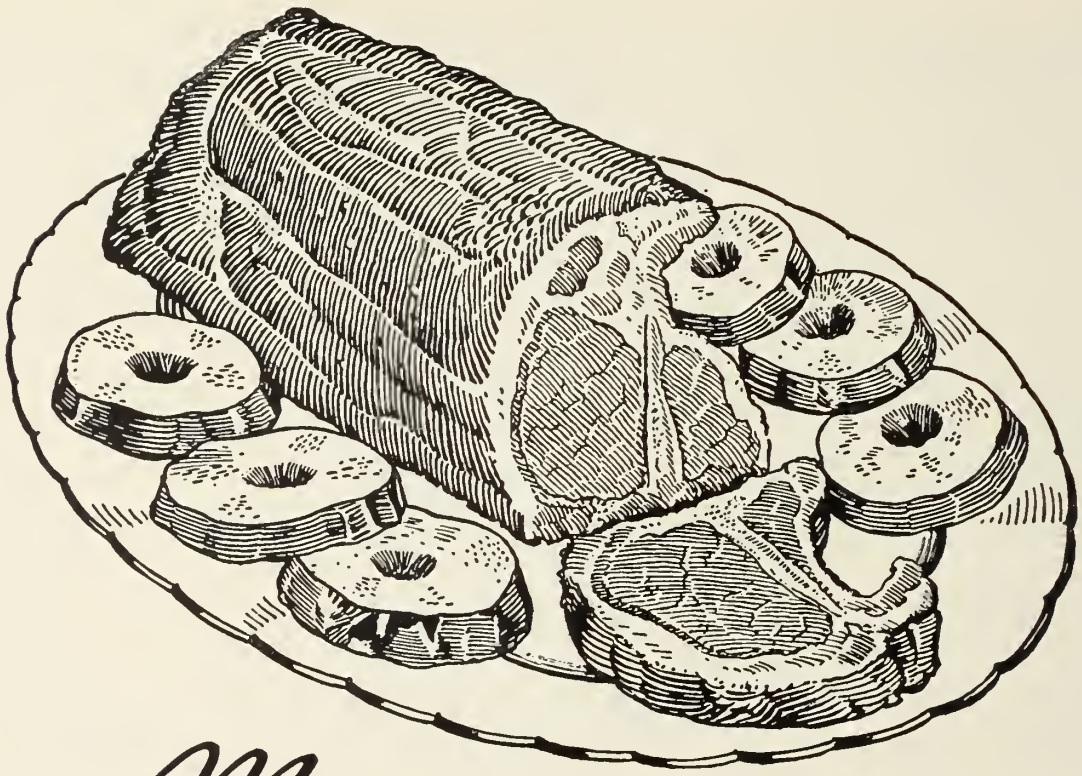
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*McLester, J. S.: Protein Comes Into Its Own, J.A.M.A. *139*:897 (Apr. 2,) 1949

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1. *Withering, W.:* An account of the Foxglove, London, 1785.
2. *Rimmerman, A. B.:* Digilanid and the Therapy of Congestive Heart Disease, Am. J. M. Sc. *209:* 33-41 (Jan.) 1945.

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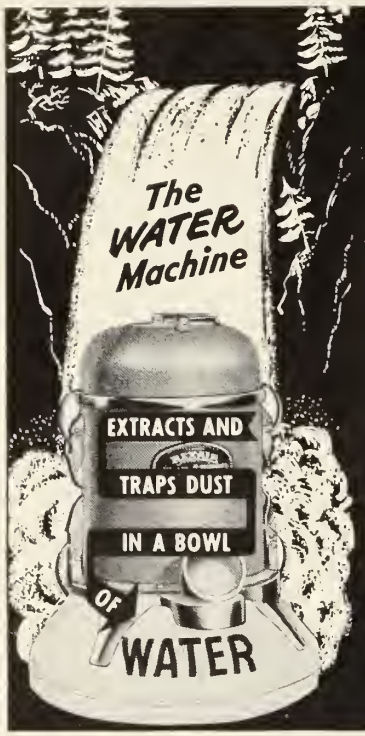
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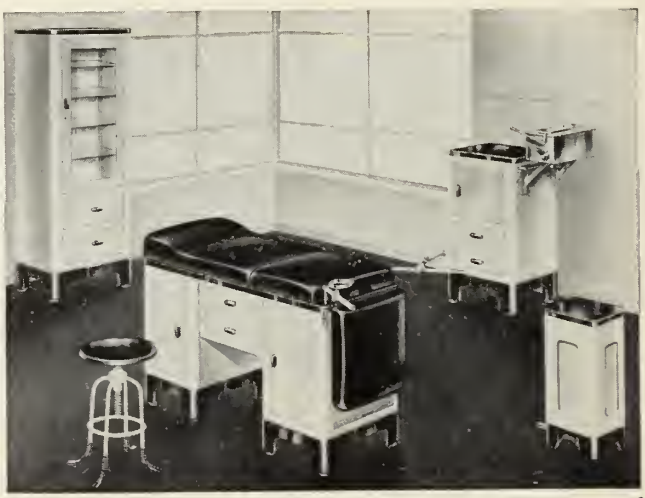
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Volume 47 MARCH, 1950 Number 3

Scientific Articles

CANCER OF THE FACE, MOUTH AND NECK

PRINCIPLES OF SURGICAL TREATMENT

LOUIS T. BYARS, M.D.
ST. LOUIS

SURGERY ALONE or in conjunction with radiation plays an essential role in the proper treatment of malignancies of the face, mouth and neck. To assign to each its proper place is a point of judgement on which the ultimate fate of the patient often depends; radiation and surgery must not be considered as competing agents. The choice of therapy should be made after considering the type of malignancy and its location, extent and characteristics of growth and sensitivity. To allow the decision as to therapy to be dictated by the capabilities of the specialist at hand in some instances is in the patient's interest but often may result in the use of the less effective treatment. It is obviously impossible to set forth a comprehensive set of rules but broad surgical principles can be stated.

The first practitioner consulted is in the best position to direct the patient with the minimum delay but, in order to act, the examining physician or dentist must suspect the diagnosis. Once suspected, the diagnosis can be confirmed only by direct evidence. Too often opportunity has been lost by allowing indirect evidence, such as a positive Wassermann test or unrelated findings, to delay the diagnosis.

Even if treatment is to be nonsurgical, the establishment of the microscopic characteristics of a growth is essential, but often the procedure fails in its purpose. A satisfactory biopsy requires a representative section of the tumor, properly prepared by a competent technician and interpreted by a competent pathologist. A biopsy with negative findings does not necessarily rule out cancer.

Surgical treatment may be carried out by knife or cautery excision. Knife excision is desirable where possible because it is followed by immediate healing, whereas cautery excision is not. Knife excision is essential if immediate repair of a resultant defect is contemplated. However, excision by cautery has advantages in some cases. In certain large lesions about the oral cavity or face, knife excision would be a bloody procedure, whereas massive destruction of such a region with the electro or thermal cautery can be carried out with little loss of blood. Healing is by secondary intention and repair must be done later. In some areas that are not easily accessible it may be impossible to remove a growth by knife excision without considerable manipulation of an ulcerated surface lesion, resulting in the implantation of cancer cells in a fertile bed. The cautery produces a field not receptive to implants. It must be remembered that cancer cells may survive after implantation more easily than do bacteria.

Chemosurgery has attained a certain popularity but does not seem to offer any advantages. It is slow in action and often multiple applications are necessary over a long period of time. The progress of elimination of the growth is checked by repeated microscopic studies, further destruction being done in the region of incomplete removal as indicated by study of many microscopic sections. The difficulty of orientation and chance of laboratory inaccuracy is a disadvantage.

Metastatic lesions of the cervical nodes must be considered in every case of squamous cell carcinoma or adenocarcinoma about the head. Even the basal cell growth of the skin in some rare instances is sufficiently mixed with squamous elements to result in a remote spread. Not infrequently the cervical metastasis is the first obvious sign of cancer, occurring while the primary lesion is small, silent and hidden. A small ulcer of the epiglottis, base of the tongue, pharynx, tonsil or nasopharynx may cause a growing, nontender, painless lump below and back of the angle of the jaw, in front of the sternomastoid muscle. These characteristics are recognized by the experienced examiner. The inexperienced examiner must remember that such enlargements in the neck in adults are not inflammatory, and he must not indulge in the empiric extraction of teeth and removal

From the Department of Surgery, Washington University School of Medicine, St. Louis.

of tonsils for their relief. Inflammatory masses in the neck in adults are almost always accompanied by the characteristic symptoms of acute inflammation. The treatment of metastases to the cervical nodes is surgical removal, not of the enlarged node only, but of the block of tissue containing this node and all others of the region (fig. 3).

Precancerous conditions such as keratoses, leukoplakias, areas of radiation dermatitis and benign

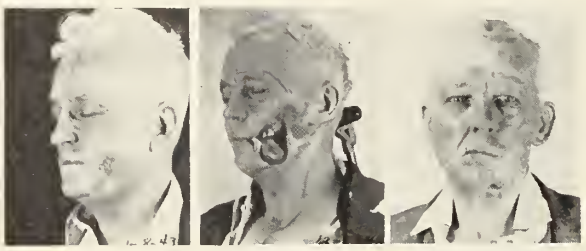


Fig. 1. A. Advanced carcinoma of alveolar mucosa invading bone and soft tissue with penetration of the full thickness of the cheek and metastases to the cervical nodes. This has been treated with heavy radiation, even though the lesion progressed while under treatment. In many such conditions surgery is the method of choice and certainly where radiation has failed, it should be abandoned in favor of surgical excision. B. Patient following block dissection of cervical nodes and removal of mandible and adjacent soft tissue involvement, this extent of destruction being necessitated by the advanced state of involvement. C. Result six years following operative removal of extensive malignancy and subsequent repair. Patient is comfortable, free of cancer and engaged in gainful occupation, indicating that even when extreme procedures are necessary and considerable deformity results, the prognosis from the standpoint of life and happiness is not necessarily bad.

tumors, with the potential power to undergo malignant change, must be removed surgically as soon as possible after they are seen.

CANCER OF THE SKIN

The exposed skin surfaces are subject to irritation from external sources and undergo malignant change more often than unexposed surfaces. Cancer of the face, even the more common basal cell type, frequently assumes serious proportions which would not occur on other body surfaces. This is because the natural reluctance on the part of the patient and physician to produce scarring of the face results in inadequate removal or the improper choice of a therapeutic agent. There is no place for compromise in the treatment of cancer. The patient and physician must remember that cancer, without intervening death from other causes, is 100 per cent fatal and that malignancy, uncontrolled, produces mutilation and pain far beyond that of adequate surgery.

The majority of lesions of the skin of the face are small when first seen and can be treated best by excision or local cautery destruction of adequate but not wasteful extent. A basal cell carcinoma that can be destroyed permanently when first seen by removing an area smaller than a finger nail may require a mutilating procedure for eradication if adequate treatment is delayed.

Growths of the external ear are best treated surgically, excising underlying cartilage if necessary and applying small skin grafts of postauricular skin. Lesions of the nose should not be given repeated or heavy radiation, as the cartilage of both the nose and the ear is superficial and easily damaged. In critical areas such as the eyelids it is safer to do an early curative excision, making an immediate simple repair with skin grafts, than to try radiation first. The belief is widespread that all basal cell lesions are equally sensitive to radiation and that this makes radiation of such growths mandatory. Actually, sensitivity varies considerably and, if radiation fails in a critical area, the chance for adequate excision without faulty function or deformity is lost.

A definite indication for surgical removal is the failure of radiation. If recurrence or failure to control a carcinoma follows radiation therapy, then it should not be continued if the lesion can be excised (figs. 1, 2). Most intelligent patients will choose radical removal of a growth with the chance of subsequent reasonable repair if the entire picture is explained to them. The physician has no right to withhold any form of treatment because he feels it to be "too mutilating." If uncontrolled the cancer will produce equal mutilation in its relentless progress.

Malignant melanomas are not sensitive to radiation and should be excised or destroyed surgically. Not all growing black lesions are melanomas. The occasional pigmented nevus or basal cell carcinoma may have a similar appearance but good prognosis.



Fig. 2. A. Basal cell carcinoma in typical location, which has been held partially in check by repeated radiation over a period of twelve years with, however, failure to cure, and continued progress of the growth. In such a situation surgical excision should be done immediately when it is found that radiation has not produced a cure at its first trial. B. Extent of the destruction necessary to eliminate the cancer. An adequately radical operation ten years earlier would not have been deforming. C. Final result following repair of ala, full thickness of lip and floor of nose with a pedicle flap.

CANCER OF THE LIP

In many instances surgical excision of cancer of the lip has been followed by persistence of the growth because fear of deformity has caused inadequate removal. The customary "V" excision is not suitable for the treatment of many growths. For these reasons, and because proper radiation in this area has an excellent chance of success, it is often chosen as the primary treatment. If it fails, then immediate radical excision must be done, often with secondary repair.

Carcinoma of the lip, if extensive, involves the bone of the mandible by direct extension or by entrance through the mental foramen. Involvement by direct extension may be controlled by adequate

excision. If, however, the mental foramen or the inferior dental canal has been invaded, the corresponding half of the mandible must be removed by disarticulation. Metastasis from carcinoma of the lip is not as early or frequent as metastasis from carcinoma of the tongue, but it does occur, often first appearing in the "buccal" lymph node overlying the mandible where it is crossed by the facial artery. This node may invade the mandible by direct extension early in its development because of its position. The treatment is early block dissection of the areas of lymphatic drainage.

CARCINOMA OF THE ORAL CAVITY

Many growths within the mouth are best treated wholly or in part by the interstitial implantation of radium or radon. That portion of a growth which involves or overlies bone should be removed by operation (figs. 1, 2). The soft tissue of the alveolus or hard palate is so thin that even if roentgen examination does not demonstrate invasion, the bone must be considered at least superficially invaded. Some lesions of the mouth are inoperable when first seen. However, if radiation is elected and fails, then surgery should be employed immediately where feasible.

MAXILLA AND MANDIBLE

The jaws are unique in that they may be the site of two completely different "sets" of tumors, those of osseous origin and those of dental origin. True malignancies are relatively uncommon and, when primary in the bone, are usually sarcomatous, arising from the periosteum, the bone or the nerve elements within the bone. An occasional adamantinoma may be malignant.

Secondary malignancy within the bone results from (1) direct extension from contiguous primary cancer, (2) direct extension from adjacent metastatic cancer in a lymph node, (3) invasion along the inferior dental canal by way of the mental foramen and (4) blood borne metastases from the breast or thyroid or some other primary site. Surgical removal is the treatment for jaw tumors, its extent being determined by a knowledge of the characteristics of the individual tumor.

TUMORS OF THE SALIVARY GLANDS

The parotid, submaxillary and sublingual glands are the sites of tumors in this order. In my series approximately 25 per cent of salivary gland tumors have been malignant at the time of first examination. The parotid gland is the host of approximately 90 per cent of salivary gland tumors and, because of its relation to the facial nerve, frequently the location of recurrent tumors. The surgeon, for fear of paralyzing the face, may do an inadequate removal. The common tumor here is the "mixed" tumor which, characteristically, appears in relatively young people, is painless, nontender and slow growing. Such tumors are prone to undergo malignant changes if subjected to the irritating effect of incomplete operation or if permitted to persist through the years. The proper treatment consists of dissection of the facial nerve in order to safeguard it, and complete removal of the tumor. If the tumor occurs in the submaxillary gland, the entire gland should be removed. Radiation therapy should not be attempted.

Primary malignancies occur in these glands, usually later in life. These are fixed and less easily outlined from the onset and are rapid in growth, often causing an early paralysis of the facial nerve if the tumor is in the parotid gland. Treatment is block dissection of the cervical nodes, especially of the posterior chain, and complete removal of the gland and such adjacent bony structures as may be involved. The prognosis is poor.

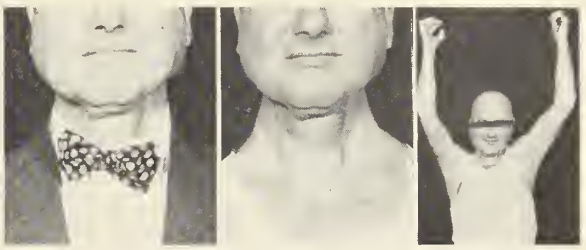


Fig. 3. Result six years after treatment of an extensive carcinoma of the tongue by the interstitial implantation of radon and dissection of gland bearing tissue in both sides of the neck for proven metastases. Despite the removal of both internal jugular veins and both sternomastoid muscles, the patient does not have undue deformity or disability. Such radical dissection of the cervical nodes is always the indicated treatment for such metastases.

CERVICAL NODE METASTASES

Block removal of gland-bearing tissues of the neck can be done quite thoroughly from the anatomic point of view, with insignificant mortality, even in older patients, and without crippling or unduly deforming effects (fig. 3). It is definitely indicated when the metastasis is evident and the primary lesion is controlled or thought to be controllable. In other circumstances in which metastases are suspected or thought to be probable, it should be done for the same reasons that an axillary dissection is done for carcinoma of the breast.

It must be emphasized that in adults inflammatory enlargements of the cervical nodes are attended by the signs and symptoms of acute inflammation and that the "silent" enlargement must be suspected of being a tumor. Too often dangerous tumors are allowed to persist while innocent teeth and tonsils are empirically removed.

REPAIR OF DEFECTS

Plastic repair and the surgical treatment of tumors of the face, mouth and jaws must be considered together in evaluating a problem, since it is the possibility of repair that makes the curative operation acceptable (figs. 1, 2). It is much more important to achieve cure than to make this repair at the time of the original operation or too soon thereafter. Nothing is more discouraging to patient and surgeon alike than to see a tumor recur and invade a repair obtained at the cost of much time and the use of critical materials. In many instances the

prognosis justifies immediate repair, which in early cases is often achieved simply. Otherwise, all stress should be placed on cure and the problem of repair assigned to later consideration.

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CHRYSOTHERAPY IN RHEUMATOID ARTHRITIS

LOUIS G. NEUDORFF, M.D.
ST. JOSEPH

The announcement of Compound E, Cortisone, (17 hydroxy-11-dehydrocorticosterone) and ACTH (pituitary adrenocorticotropic hormone) as therapeutic weapons for the victims of rheumatoid arthritis, herald a new era of hope and encouragement for the lay population and may revolutionize the treatment of this disease.[1]

These new preparations are not available to the medical profession. Their unknown properties and side effects keep them still in the experimental field, yet the sufferers of this crippling, joint bending, deforming entity must still be treated effectively with all available physical measures, therapeutic resources and drugs.

Gold salts were used in the treatment of rheumatoid arthritis in Germany and France in the middle 1920's, and in 1934 Forestier[2] reported on 500 cases treated in the previous five year period. His results were far more successful than with any remedy previously used. The gold salt was injected weekly in doses of from 100 to 200 mg., and the total amount of from 1,500 to 2,000 mg. constituted a series. Several series were given successively with intervals of from six to eight weeks' rest interspaced. In certain cases, much larger doses were given. These large amounts of gold salts were responsible for the high incidence of toxic reactions, and the initial highly favorable results were soon tempered by severe and occasionally fatal reactions so that the enthusiasm, with which the use of gold had been hailed, diminished.[3]

The following year Forestier[4] reported six years' experience with the use of gold salts, and reviewed the subject of gold therapy. Solganal-B Oleosum (aurothioglucose) was used in larger doses than any other previous preparation. The initial dose was 50 mg., and was increased up to 200 and sometimes 300 mg., the total amount for the series ranging between 2,500 and 3,000 mg. The opinions as to the optimum dosage were divergent, but most rheumatologists agreed that treatment should be carried on in regular series of doses, with intervals of rest interspaced, and continuing for a period of two years. The earlier the treatment was instituted, the better the results, and this early response reduced the total amount of gold injected. The smaller dosage, in conjunction with the improved preparations, lowered the incidence of toxic reactions.

Consultant in Internal Medicine, Thompson-Brumm-Knepper Clinic, St. Joseph, Missouri.
Read before the Buchanan County Medical Society, St. Joseph, Missouri, November 2, 1949.

Following the publication of these findings Forestier made a personal tour of the United States, reporting his favorable results with the use of gold. Following his tour, clinical reports on the use of gold in arthritis were published by American authors. Phillips[5] followed the outline of treatment as given by Forestier. His results were poor and the incidence of toxic reactions extremely high, which caused him to give up the use of gold in the treatment of rheumatoid arthritis.

In 1937 the pendulum began to swing in the opposite direction, with the giving of smaller individual doses of the gold salts. Hartfall, Garland and Goldie[6] reported on 900 cases of arthritis, of which 690 were of the rheumatoid type. The injections were given at weekly intervals. In their first 100 cases single doses of 200 mg. were given and the total amount of gold salt in one course was approximately 2,000 mg. They then reduced the initial dose to 50 mg., and later to 25 mg., and the total amount in a course to 1,000 mg. If the first dose produced pain, the same dose was repeated. In the absence of pain the second dose was 50 mg., the third and subsequent doses were 100 mg. until a total of 1,000 mg. had been given.

A course, therefore, consisted of twelve injections. The interval between courses was at least twelve weeks and, if no toxic symptoms appeared in this period, a second similar course was always given. Similar courses were given at three month intervals in any case which did not justify the term "cure" or in any case of apparent cure with a persistently raised sedimentation rate. Further treatment also was given in the event of relapse. If toxic reactions appeared, treatment was suspended for a period of time, depending on the type and severity. This was usually two months after the reaction had disappeared.

In 1939 Key,[7] in the United States, used large doses of gold; 50 mg. of the salt was used as the initial dose and 100 mg. thereafter until the patient had received 2,000 mg. of the salt. A rest period of six weeks was then given and, if the disease was still active, or if the sedimentation rate was accelerated, a second course was given. After a rest period of from four to six months, a third course was given if indicated.

Hall,[8] in 1943, reduced the amounts of gold injected when he administered 10 mg. as the initial dose, and this was then repeated in four days. Two injections of 25 mg. at four day intervals was given and followed by 50 mg. at weekly intervals. In this series, he used the slow absorbing water soluble oil suspension Solganal-B Oleosum, (aurothioglucose). The 50 mg. doses of gold salts are then continued until (1) a toxic reaction occurs; (2) the disease is clinically under control (and several normal sedimentation rates are obtained), or (3) the total dose of from 700 to 1,000 mg. of the drug has been given. Occasionally 100 mg. doses are given, and a greater total amount. When the arthritis is apparently under control, maintenance doses are given at three to four week in-

Table 1. *Review of Gold Therapy in Rheumatoid Arthritis.*

Clinic No.	Age	Sex	Stage of Arthritis	Class of Functional Impairment	Duration Before Gold Therapy	Total Amt. Of Gold Salts	Number of Injections	Grade of Response to Therapy	Remarks
11687	34	F	II	II	4½ yrs.	1920	44	I	Previous treatment c Ertron. Total hysterectomy, May, 1948 s recurrence.
9750	53	M	III	IV	1½ yrs.	1315	26	I	To hospital on a stretcher; home on crutches; then cane. Now free of all distress.
12659	38	F	III	III	6 yrs.	5210	88	II III	Had major improvement but relapsed. Continued therapy produced only minor improvement, but still improving.
717	74	F	IV	IV	4 yrs.	1175	24	II	Walking after 1 yr. in bed and/or in wheelchair. Has taken tub bath for first time in over 2 yrs.
16152	41	F	II	II	10 yrs.	1200	37	I	Better now than any time in previous 10 yr. period. Thyroidectomy performed s recurrence of arthritis.
1305	51	F	II	III	3 yrs.	1900	36	II	Previous treatment c Ertron. Is able to carry on all activities c minimal degree of pain.
182	54	F	I	II	2 yrs.	1285	27	I	"States if one injection per month will keep her feeling as well as she now feels, will continue for the rest of her life."
6045	34	F	I	II	1 yr.	1375	28	I	Free of distress for 8 months.
62	58	F	IV	III	30 yrs.	1525	29	IV	Has associated psoriasis, which cleared under gold therapy but relapsed.
23106	24	F	I	II	1 yr.	485	11	I	Too early for adequate evaluation. No progression of arthritis.
22422	70	F	I	II	5 yrs.	535	12	I	Too early for adequate evaluation. No progression of arthritis.
17690	72	F	II	II	6 mos.	1025	21	II	Associated hypertrophic arthritis, mild hypertension and arteriosclerosis. Had severe pain, now 75% relieved.
14013	29	F	I	I	5 yrs.	625	13	IV	No improvement. Defaulted.
18573	45	M	I	I	2 yrs.	725	15	I	Improved, free of pain.
18866	38	F	I	I	6 mos.	975	20	I	"50%" improved, occasional discomfort.
16259	47	M	II	III	4 yrs.	925	19	IV	Died at home suddenly. Cause of death undetermined. No autopsy.
16683	38	M	II	II	4 yrs.	900	18	II	Mild stomatitis developed. Arthritis is better.
4642	32	F	I	II	6 mos.	510	12	I	All evidence of arthritis, pain, swelling, redness, gone. Sedimentation rate normal.

tervals for a few months. In some cases courses of treatment are necessary for the arthritis again becomes active after a few months without medication. By using as small a dose as possible, toxic reactions were maintained at the minimum. This method of therapy is conservative.

In the same year Cohen and Dubbs[9] reported 122 cases of rheumatoid arthritis treated with 176 courses of gold. A course consisted of intramuscular injections of 10 mg. twice weekly for four doses; 25 mg. twice weekly for four doses; 50 mg. twice weekly for four doses, and 100 mg. weekly for nine doses, a total of 1,240 mg. This constituted a course, and a rest period of at least six weeks was allowed between courses.

In 1944 the trend was to the other extreme, and Rawls[10] et al. reported 100 cases in which 86 per cent showed some degree of improvement by using small doses of the gold salts. Their tentative schedule was 5 mg. intramuscularly twice weekly for three weeks; 10 mg. twice weekly for three weeks; and then 25 mg. once a week. If toxic symptoms did not develop after three weeks of the latter dose, they rarely appeared subsequently. Most of their patients were given 25 mg. a week throughout the series but, in a few cases that showed no improvement after four weeks, the dose was increased by 5 mg. every two weeks until improvement occurred or until 50 mg. a week was reached. Never did their dose reach above 50 mg. nor did they give a definite course of injections, but continued gold salts indefinitely, or at least for twelve months. In this way they were able to prevent the relapse that so frequently occurs with the standardized course method.

Short,[11] in 1946, in an excellent review of the subject, stated that the trend in recent years has been to decrease the maximum weekly dose from 50 mg. of metallic gold to 25 mg., or even 12.5 mg. It is believed that a smaller amount of gold in the body at any one time reduces the incidence, severity and duration of toxic manifestations. Irrespective of the weekly dosage, a total of 500 mg. of the metallic gold usually comprises one course, the interval between courses varying from one to three months. The practitioner is confronted with a dilemma at this point. He must weigh the possibility of delayed toxicity against the possibility that the disease will relapse with discontinuance of therapy. To overcome this difficulty, it has been suggested[8] that small maintenance doses between courses be used, or that the drug be given continuously in small amounts for a prolonged period.

In 1946 Ragan and Tyson[12] showed that if a patient presented improvement after the original treatment with gold compound, he will relapse but will probably improve again on subsequent gold compound therapy. Based on this idea, they instituted a program of maintenance doses whereby a patient continues to receive gold at regular intervals indefinitely. With this form of treatment a severe and disabling relapse can be prevented.

Hench[13] states that the optimum maximum dose is 50 mg. of gold salts (about 25 mg. of gold). Although many European physicians continue to give doses of gold salts many times greater than 50 or even 100 mg., most American physicians have abandoned the former "course method." To reduce the incidence of relapse and toxic reactions, maximal weekly doses of 50 mg. of gold salts are now generally used and, when articular symptoms abate and the sedimentation rates approach normal, the doses are not discontinued but small maintenance doses are continued for several months.

Wright[14] has used gold salts in maintenance doses for a period of five years. The initial dose is 10 mg., second is 25 mg. and the third and subsequent doses are of 50 mg. until a total of 985 or 1,035 mg. of the gold salt has been administered. This constitutes twenty-one or twenty-two weeks of treatment. Subsequently, his plan is to continue at monthly intervals with 50 mg. for sixty months in all if, in the interval, nothing better is discovered for the treatment of this disease. The reason for setting the period at five years is, according to the standard of rheumatologists, that no case of rheumatoid arthritis is considered as cured until it has remained inactive for five years. The reversibility of the disease has been noted on several occasions and, in some cases, the interval between injections was shortened to two or three weeks and, in others, the amount of gold salts increased from 50 to 100 mg. in large individuals.

For the last thirty months I have been following the plan of maintenance doses with no specific time interval or dosage, but individualizing each case as to its clinical response or the development of a toxic reaction. The initial dose is 10 mg. of the gold salt;* in one week 25 mg., and the third and subsequent weekly injection being 50 mg. When the active process is arrested, the interval of time between injections is gradually lengthened; i.e., 50 mg. every two weeks for from two to four doses, then every three weeks for from two to four doses, and then every four weeks. In a few instances the dosage is increased to 100 mg. weekly for two weeks, and then returned to the 50 mg. level. Likewise, in a few cases the interval of time between injections is lengthened to every five or six weeks.

As previously stated, each case is individualized and all precautions are taken to prevent a serious toxic reaction. Although this series is small, only one toxic reaction, a dermatitis, developed during the maintenance period, and this came during the twentieth month. The dermatitis responded favorably to Bal (British Anti-Lewisite) without a recurrence of the arthritis, and the patient again receiving gold salts, but in 25 mg. doses only.

Also, under this program of treatment, only one patient has had a relapse during the maintenance

* Solganal-B Oleosum (aurothioglucose), Schering Corporation, Bloomfield, New Jersey, was used exclusively in this report.

period. The dose interval was shortened to weekly injections of 50 mg. and on four occasions 100 mg. was given. The arthritis is again responding favorably and no toxic reactions have been noted.

Gold is not relied upon exclusively but other forms of treatment are used such as increased rest, physical therapy, salicylates, blood transfusions and the anti-anemic factors of iron, liver and vitamins. Reassurance and enhancement of the doctor-patient relationship is vital in the treatment of this disease, as in any other chronic disease. The patients often become discouraged and unduly optimistic about the outcome and, therefore, need to be treated from the standpoint of the whole body and mind. The care of these patients requires time and sympathetic understanding of all their problems—social, economic and psychogenic as well.

Every patient is seen before each dose of gold is administered. Urinalyses are done weekly and the blood is examined at regular intervals for evidence of depression of the bone marrow.

In classifying the arthritis into the four stages, and reporting the therapeutic response of the rheumatoid activity, the criteria as outlined by Steinbrocker[15] and adopted by the New York Rheumatism Association and the American Rheumatism Association (Executive Committee) have been followed. The following outline was used.

I. Classification of Stages of Rheumatoid Arthritis.
Stage I. Early.
* 1. No destructive changes roentgenologically.
2. Roentgenologic evidence of osteoporosis may be present.
Stage II. Moderate.
* 1. Roentgenologic evidence of osteoporosis, with or without slight subchondral bone destruction. Slight cartilage destruction may be present.
* 2. No joint deformities, although limitation of joint mobility may be present.
3. Adjacent muscle atrophy.
4. Extra-articular soft tissue lesions, such as nodules and tenovaginitis may be present.
Stage III. Severe.
* 1. Roentgenologic evidence of cartilage and bone destruction, in addition to osteoporosis.
* 2. Joint deformity, such as subluxation, ulnar deviation or hyperextension, without fibrous or bony ankylosis.
3. Extensive muscle atrophy.
4. Extra-articular soft tissue lesions, such as nodules and tenovaginitis may be present.
Stage IV. Terminal.
* 1. Fibrous or bony ankylosis.
2. Criteria of State III.

II. Classification of Functional Impairment.
Class I.
Complete functional capacity with ability to carry on all usual duties without handicaps.
Class II.
Functional capacity adequate to conduct normal activities despite handicap of discomfort or limited mobility of one or more joints.
Class III.
Functional capacity adequate to perform only little or none of the duties of usual occupation or of self care.
Class IV.
Largely or wholly incapacitated, with patient bedridden or confined to wheelchair, permitting little or no self care.

III. Therapeutic Criteria for Response of Rheumatoid Activity.
Grade I, Complete Remission.
* 1. No systemic signs of rheumatoid activity.
* 2. No signs of joint inflammation.
* 3. No evidence of activity in any extra-articular process, including nodules, tenovagintis and iritis.
* 4. No remaining impairment of joint mobility, other than that associated with irreversible changes.
* 5. No elevation of erythrocyte sedimentation rate.
6. Articular deformity or extra-articular involvement due to irreversible changes, may be present.
Grade II, Major Improvement.
* 1. No systemic signs of rheumatoid activity, with exception of an elevated sedimentation rate and vasomotor imbalance.
* 2. Major signs of inflammation resolved, such as heat, redness of joints and of extra-articular involvement.
* 3. No new rheumatoid process of intra-articular or extra-articular structures.
4. Minimum joint swelling may be present.
5. Impairment of joint mobility associated with minimum residual activity may be present.
6. Articular deformity, or extra-articular involvement due to irreversible changes, may be present.
Grade III, Minor Improvement.
Any decrease in signs of rheumatoid activity inadequate to fulfill the criteria of Grade II:
* 1. Diminution of systemic signs of rheumatoid activity.
* 2. Signs of joint inflammation only partially resolved.
* 3. No evidence of extension of rheumatoid activity into additional articular or extra-articular structures.
4. Decreased but not minimum joint swelling present.
5. Impairment of joint mobility due to residual inflammation may be present.
6. Articular deformity, or extra-articular involvement due to irreversible changes, may be present.
Grade IV, Unimprovement or Progression.
* 1. Undiminished signs of rheumatoid activity, regardless of functional capacity.
* 2. Exacerbation of any previously involved joint or joints, or development of new sites of rheumatoid activity.
* 3. Roentgenologic changes indicative of progression of the rheumatoid process, excepting hypertrophic changes.
4. In the presence of one or more of the aforementioned criteria, improvement in other features, including a normal or lowered erythrocyte sedimentation rate, not significant.

* Must be present to permit classification of a patient in any particular stage or grade.

SUMMARY

1. A brief review of the use of gold in the treatment of rheumatoid arthritis is presented. The use of gold salts in small maintenance doses is outlined, along with other therapeutic measures.

2. The outline used by the New York Rheumatism Association and adopted by the Executive Committee of the American Rheumatism Association is presented.

3. Chart on eighteen patients having received gold for rheumatoid arthrititis is presented.

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MESANTOIN IN TREATMENT OF EPILEPSY

(Two Case Reports)

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Mesantoin (3-methyl-5, 5-phenylethylhydantoin) was first reported as an efficient drug in the treatment of epilepsy by Loscalzo[1] in 1945. Since that time, the literature has increased steadily with many favorable reports on the use of mesantoin either alone or in conjunction with phenobarbital in grand mal seizures,[2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15] physchomotor seizures,[3, 14, 16] and Jacksonian seizures.[12, 13, 14] In this report I wish to add to the literature the results obtained with this drug in the Firmin Desloge Hospital's Convulsive Disorder Clinic of the St. Louis University School of Medicine.

DATA AND RESULTS

Of sixty cases used in this study, ranging in age from 7 to 78 years of both sexes, all except two were on dilantin (diphenylhydantoin sodium) and phenobarbital, with poor to fair results. None were controlled completely.

Of fifty-four cases of grand mal convulsions treated with mesantoin, thirteen have been controlled completely for a period of from six to twenty-four months at the time of this report. Of the other forty-one cases of grand mal seizures, thirty-six were definitely improved and five unimproved. However, none were made worse. The remaining six cases were psychomotor, Jacksonian and petit mal seizures. Of the three cases of psychomotor equivalent attacks, one has been controlled, two have been improved. Of the two cases of Jacksonian epilepsy, one has been improved definitely, the other unimproved. Mesantoin was employed in one case of petit mal in which tridione had failed. The patient, aged 7, was having from four to five classical petit mal attacks daily. These promptly subsided when the dose of mesantoin reached 400 mg. (4 tablets) daily. I regard this as an exceptional case and do not recommend mesantoin in routine use in petit mal.

The most prevalent side effect in these cases was drowsiness, which appeared in ten cases, or 16 per cent. This subsided in most instances after a few weeks. There was no case in which medication had to be discontinued for this cause. This side effect appears to be common to the hydantoins.

A transient skin rash appeared in four cases, or 6 per cent. If dosage is reduced slightly for two or three weeks, this rash usually clears. A persistent eczematoid eruption appeared in two cases and required discontinuation of the drug. This side effect also appears to be common to hydantoins in sensitive patients. No blood dyscrasias appeared in these sixty cases. However, any drug with a benzene ring nucleus such as the hydantoins and phenobarbital is likely to produce blood changes in sensitive patients and this possibility should be considered. One case, a 16 year old girl, showed gum hypertrophy due to dilantin which was so severe that her teeth were almost entirely engulfed by the hypertrophic gums. When mesantoin was used to replace dilantin, the hypertrophy promptly regressed and the gums returned to normal.

From the Department of Internal Medicine and the Convulsive Disorder Clinic of the St. Louis University School of Medicine.

MODE OF ADMINISTRATION

An important factor in obtaining good results with mesantoin is the mode of administration. Dosage should be built up slowly beginning with 50 mg. (½ tablet), after dinner, supper and bedtime for three days. The dosage then can be raised to one tablet after dinner, supper and bedtime, for from four to seven days. Most patients then can tolerate 100 mg. (1 tablet) after meals and bedtime, without ill effect. If more than 100 mg. four times daily is required to control the seizures, phenobarbital 100 mg. should be given in one dose at bedtime. In patients already receiving dilantin, the daily dilantin schedule should be reduced slowly. The reduction should not begin until at least the fourth day after mesantoin has been started. The daily dilantin schedule then can be reduced by one capsule per day each week. In the average case, therefore, it would require about one month to withdraw completely dilantin medication. One of the greatest advantages of mesantoin is that the dosage can be increased gradually without ill effect until the patient's anticonvulsive level is reached. This is often as high as 800 to 1,200 mg. (8 to 12 tablets) daily. This dosage could never be attained with dilantin.

REPORT OF CASES

Case 1. D. W., a 28 year old male, entered St. Louis University Clinic with a history of grand mal convulsions with onset at age of 6. According to patient's mother, he had had from three to ten severe attacks daily for years and had never gone more than three days without a convulsion in twenty-two years. She stated that "When he is not sleeping or eating, he is having a convulsion."

Upon admission to the clinic September 7, 1948, the patient was dull, listless and definitely mentally retarded. He had been taking dilantin, 100 mg. twice daily and phenobarbital 100 mg. twice daily. There was a history of severe measles with delirium at age 2, "meningitis," at age 5. There was no history of head or birth injury. The patient's mother has a cousin with "convulsions."

Physical and neurologic examination revealed nothing in addition to listnessness and obvious mental retardation. Electroencephalogram revealed a generalized slow paroxysmal dysrhythmia, highly consistent with the diagnosis of a convulsive disorder.

Due to the severity of convulsions, mesantoin was begun in a higher dose than is recommended. One hundred mg. after meals and bedtime were given without altering previous dilantin and phenobarbital dose. The patient returned in one week without improvement. He had had from two to four severe convulsions daily. At this point, mesantoin dosage was increased to 200 mg. (2 tablets) after meals and bedtime. Dilantin and phenobarbital were reduced to 100 mg. each, given at bedtime. The following week the patient was much improved, having only three brief seizures. Dilantin was discontinued but phenobarbital 100 mg. was continued

at bedtime. Because of morning drowsiness, his mesantoin schedule was changed to 200 mg. (2 tablets) after dinner and supper, and 400 mg. (4 tablets) with 100 mg. phenobarbital at bedtime. When the patient returned to the clinic one month later, he was dramatically improved. He had had but six brief seizures consisting of loss of consciousness and twitching for a minute or two. He did not fall during these attacks. He had obtained employment for the first time in his life in a small town candy warehouse. The patient maintained this improvement for eight months. At that time, the candy factory closed down and the patient lost employment. He then ran away from home in search of work. He was found four or five days later by the police in Kansas City. He had lost his mesantoin medication two or three days before and was again having severe convulsions. The patient has not been seen since that time.

Case 2. M. B., a 44 year old female, was first seen in the St. Louis University Clinic on June 11, 1947. She gave a history of numerous grand mal convulsions averaging from four to ten per month, together with occasional psychomotor seizures with onset at age of 24. Upon admission to the Clinic, she stated that she had had one grand mal attack per day for the last week. At that time she was taking tridione, 300 mg. four times daily, dilantin 100 mg. four times daily, Elixir Alurate 4 cc. after meals and bedtime.

The only positive finding in her past history was diphtheria and scarlet fever at age 3, both accompanied by high fever. There was no history of head injury, birth injury or encephalitis. There was no family history of convulsions. After physical and neurologic examination, the patient was found to be underweight and considerably apprehensive. X-ray examination of chest and gastrointestinal tract were within normal limits. Routine blood examination, urinalysis and electrocardiogram were normal. Her electroencephalogram revealed a slow paroxysmal dysrhythmia consistent with a convulsive disorder.

Mesantoin was begun June 11, 1947, the day she came in, 50 mg. (½ tablet) after dinner, supper and bedtime for three days, then 100 mg. (1 tablet) after dinner, supper and bedtime with 100 mg. phenobarbital at bedtime. Dilantin was not reduced until one week after the mesantoin was begun. It was then reduced one capsule per day each week, and the patient was entirely without dilantin after one month. At that time, there was some drowsiness and the patient was reluctant to increase mesantoin dosage. However, phenobarbital was discontinued and mesantoin was increased by 100 mg. (1 tablet) per day each week. There was prompt reduction in the number of attacks, but the attacks did not cease until daily mesantoin dosage reached 200 mg. (2 tablets) after meals and at bedtime. Drowsiness gradually disappeared. At the present time, the patient has had no convulsions for the last twelve months.

SUMMARY

1. In this series, a greater overall reduction of seizures was experienced with mesantoin than with dilantin.

2. Mesantoin completely controlled 22 per cent of the patients with grand mal seizures for from six to twenty-four months (at the time of this report) whereas dilantin failed in this respect.

3. Distressing toxic symptoms encountered with dilantin such as gum hyperplasia, hirsutism, extreme ataxia and gastric discomfort were not observed with mesantoin in this series.

4. Due to its lower toxicity mesantoin has a wider therapeutic range than dilantin.

5. The best results with mesantoin were obtained by gradually increasing dosage until anticonvulsive level was reached and at the same time gradually reducing previous medication, if any.

6. Two cases are reported which did not respond to anything except mesantoin.

7. It is felt that mesantoin is a definite improvement over any anticonvulsant heretofore used in this clinic, and should be considered the drug of choice in treating grand mal seizures, along with at least trying it in psychomotor and Jacksonian seizures.

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STREPTOMYCIN REPORTED AID IN TUBERCULAR CONDITION

Stretomycin is a valuable adjunct in the treatment of tuberculosis of the female genital tract, three Chicago doctors report in the February 25 *Journal of the American Medical Association.*

The opinion is expressed by Drs. Harry Sered, Frederick H. Falls and Bruce P. Zummo and is based on experience with sixteen patients treated in the Cook County Hospital, Chicago. They say streptomycin was found to be valuable in preparing these patients for surgery because most of them were poor operative risks.

"All patients receiving streptomycin showed improvement in nearly every respect," they report. "Appetites definitely improved, the abdominal discomfort often associated with ingestion of food subsided. Weakness and fatigue progresively diminished and temperatures leveled off, usually within the first week and in some instances even sooner. All patients experienced a sense of well-being."

E.C.B.-210, A NEW AGENT FOR THE TREATMENT OF HEADACHE: A COMPARISON WITH CAFERGONE

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The combination of ergotamine tartrate and caffein has proven to be of considerable value when used to abort attacks of migraine headache and histaminic cephalgia. This combination of drugs is now manufactured under the name of Cafergone. It is a relatively new product, having appeared on the market only in the spring of 1949. Cafergone is used to abort attacks of migraine and histaminic cephalgia but it is not expected to cure either. The results obtained with Cafergone are good when used with this type of headache, but of little value in any other type of headache. Experimentally, Cafergone was known as E.C.-110 and the first report was published in 1948.[1]

Roughly, 10 per cent of patients taking Cafergone experience some toxic side effects. These side effects consist of gastric distress, nausea and abdominal cramps. No vomiting was experienced in any of these cases.[2] Many of the patients experiencing side effects obtained some relief from headache.

Therefore the problem is to find a combination of drugs which will not produce side effects. In an attempt to avoid these side effects the manufacturers of Cafergone have prepared a new product which at the present time is known as E.C.B.-210.

E.C.B.-210, like Cafergone, contains 1.0 mg. of ergotamine tartrate and 100.0 mg. of caffein. However, in E.C.B.-210 there is the addition of 0.125 mg. of bellafoline. Bellafoline inhibits parasympathetic nerve impulses, relieves smooth muscle spasm and controls hypersecretion. In a study made on the use of antispasmodics in the treatment of gastrointestinal disorders, it was found that bellafoline had the most prolonged effect in decreasing peristalsis and muscle tone.[3] Bellafoline was found to have about twice the inhibitory effect of atropine upon the vagus nerve and is only one half as toxic in equal dosage.[4] Thus, in E.C.B.-210 there is a sympathetic sedative which is ergotamine tartrate and also a vagal sedative which is bellafoline. Caffein has a central stimulant action. It has been suggested that caffein produces vasoconstriction of the intracranial and extracranial vessels.

Since Cafergone was found to be of benefit only in cases of migraine and histaminic cephalgia and to a lesser degree in the tension type of headache, E.C.B.-210 was employed only in cases of this type.

The migraine type of headache is usually hemicranial. It usually is associated with nausea, vomiting, scotomata and a family history of similar headaches. Migraine headaches are seen in women more often than in men in a ratio of more than two to one. In women, the attacks are often more severe at the start and during menstruation.

Histaminic cephalgia as described by Horton[2] is characterized by a unilateral headache, which usually begins in the later decades of life. It is of short duration, as it generally lasts less than an hour, begins and terminates suddenly. It tends to awaken the patient at night one to two hours after he has gone to sleep and it frequently is eased by sitting or standing. It is associated with profuse watering and congestion of the eye, rhinorrhea or stuffiness of the nose, increased surface temperature and swelling of the temporal vessels of the involved side. Pain is the outstanding complaint. It is constant, excruciating, boring and burning in character. The pain involves the eye, neck, temple and often the face.

The tension type of headache may be localized or generalized, as any vessel may be the origin of the pain. The headache is not caused by nervous tension, *per se*, which gives rise to a state of hypertonicity, but by the hypotonicity or vasodilation which follows the hypertonicity or vasoconstriction. Pain does not occur during the vasoconstriction phase but follows shortly thereafter and is a vasodilation phenomenon.

The average dose of Cafergone is two tablets taken at the onset of the headache.[6] If it is taken after the attack is pronounced, it has little if any effect. The same dose produced the best results with E.C.B.-210.

TABLE 1.

Results of administration of E.C.B.-210 in cases of headache

Type of Headache	No. of Cases	Side Effects	RESULTS Excellent[a]	Good[b]	Poor[c]
Migraine	63	2	51	5	7
Histaminic Cephalgia	25	2	20	3	2
Tension	12	1	3	5	4
Total	100	5	74	13	13

[a] Complete relief obtained.
[b] Partial relief of symptoms.
[c] Little or no relief of symptoms.

In 5 per cent of the cases there were side effects. Of these, three patients had nausea and two patients had abdominal cramps. Thus, the side effects were less than those reported with Cafergone. The reports with Cafergone showed side effects in about 10 per cent of the patients. The addition of bellafoline to ergotamine tartrate and caffein (Cafergone), therefore, seems to be of considerable benefit in the reduction of the gastric side effects. It is true that the side effects which were experienced from Cafergone were not of a severe nature, but those experienced with E.C.B.-210 were even less.

As far as the aborting of the headache attacks is concerned, E.C.B.-210 was found to be as effective as Cafergone, but not more effective. This is to be expected since the only agents in E.C.B.-210 which would exert any influence on the headache attack are ergotamine tartrate and caffein. E.C.B.-210 and Cafergone both contain the same amounts of these drugs.

E.C.B.-210 is not available commercially at this time. However, if a patient is receiving relief from headaches by using Cafergone and is experiencing some gastric side effects, Cafergone with an addi-

tional tablet of 0.125 mg. of bellafoline might be tried. This will be the equivalent of one tablet of E.C.B.-210. Since average dosage of E.C.B.-210 is two tablets, patients experiencing gastric side effects should be given two tablets of Cafergone and 0.25 mg. of bellafoline at the onset of the headache attack for the best results. The proper administration of either E.C.B.-210 or Cafergone is an essential to its success. The percentage of patients who receive relief from the headache attack by taking either drug after the attack has fully started is less than 5 per cent. Some patients find that after taking the prescribed two tablets at the onset of the attack, the attack is reduced greatly in severity, but in order to obtain complete relief, an additional tablet is required. This third tablet usually is taken within from one half to one hour after the first two tablets.

This report tends to show that the new preparation now known as E.C.B.-210 does produce less side effects than Cafergone. It does not, however, afford any greater relief in regard to the aborting of the headache attacks, but is just as effective as Cafergone in this respect. Since E.C.B.-210 reduces the incidence of side effects, it seems to be the drug of choice and it certainly should be used in patients who receive relief from the headache attacks by using Cafergone but experience the gastric side effects.

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USE AUREOMYCIN AGAINST INFLUENZAL MENINGITIS

Favorable results from treating seven patients for influenzal meningitis with aureomycin are reported by a group of doctors from the University of Maryland School of Medicine, Baltimore.

The disease is an infection of the membranes which envelop the brain and spinal cord and is not caused by the microbe responsible for ordinary influenza.

"Aureomycin therapy was followed by fall of temperature to normal levels within 96 hours after the initial dose," Drs. Miles E. Drake, J. Edmund Bradley, Jerome Imburg, Fred R. McCrumb Jr. and Theodore E. Woodward write in the February 18 *Journal of the American Medical Association.*

"On the third day of treatment, abatement of such symptoms as mental dullness and convulsions was definite," the doctors say. "On the fifth day, the acute phase of illness had completely disappeared. The patients were plainly convalescent, with increased strength and return of appetite."

"Clinical trial of aureomycin in these cases has led us to believe that it may represent a highly effective method of therapy in this type of infection."

PLASTIC OPERATION IN FRACTURE OF THE PATELLA

ALVIN C. SCHOPP, M.D.
ST. LOUIS
AND
CARL M. FELLHAUER, M.D.
ST. LOUIS

THE TERM "plastic operation" in fracture of the patella is used to indicate a new type of surgical procedure designed to augment the present day surgical approach to the problem.

This paper is presented as a preliminary report on five cases of fracture of the patella with complete rupture of the quadriceps aponeurosis, treated surgically with total patellectomy, followed by plastic repair utilizing the quadriceps tendon and the patellar ligament.

AIMS OF PROCEDURE

1. Strengthen the mechanism of the knee joint following patella fracture with complete tear of the aponeurosis.
2. Attempt to restore normal range of motion in the knee joint.
3. Allow early ambulation.
4. Avoid subsequent arthritic changes in the knee joint resulting from incongruity of the articular surface of the patella.
5. Prevent quadriceps atrophy from prolonged immobilization.
6. Prevent adhesions across the knee joint.
7. Reduce postoperative pain, swelling and sedation by immediate activity.

TECHNIC

A median parapatellar incision is made beginning approximately four and one half inches proximal to the superior border of the patella and extending distally to the level of the tibial tuberosity.

The line of fracture is exposed and the patellar fragments are removed from the ruptured quadriceps aponeurosis by sharp dissection (fig. 1A). The interior of the knee joint is irrigated with warm isotonic sterile saline to remove blood clots and any small loose bony fracture fragments which may be present. Careful inspection is then exercised to determine whether damage has been sustained to the menisci, cruciates or collateral ligaments.

The irregular edges of the torn quadriceps aponeurosis are made even by sharp dissection and repair of the ruptured edges accomplished, using number two silk interrupted mattress sutures (fig. 1B).

A tongue like flap is then prepared from the quadriceps tendon carefully so that entrance into the quadriceps pouch is avoided. The base of this flap should be about one half inch proximal to the previously repaired aponuerosis.

A similar tongue shaped flap but smaller in size

From the Department of Orthopedic Surgery, St. Louis University School of Medicine, and the Orthopedic Service, St. Louis City Hospital.

is prepared using part thickness of the patellar ligament with the apex of this flap pointing distally and its base one half inch distal to the repaired aponeurosis.

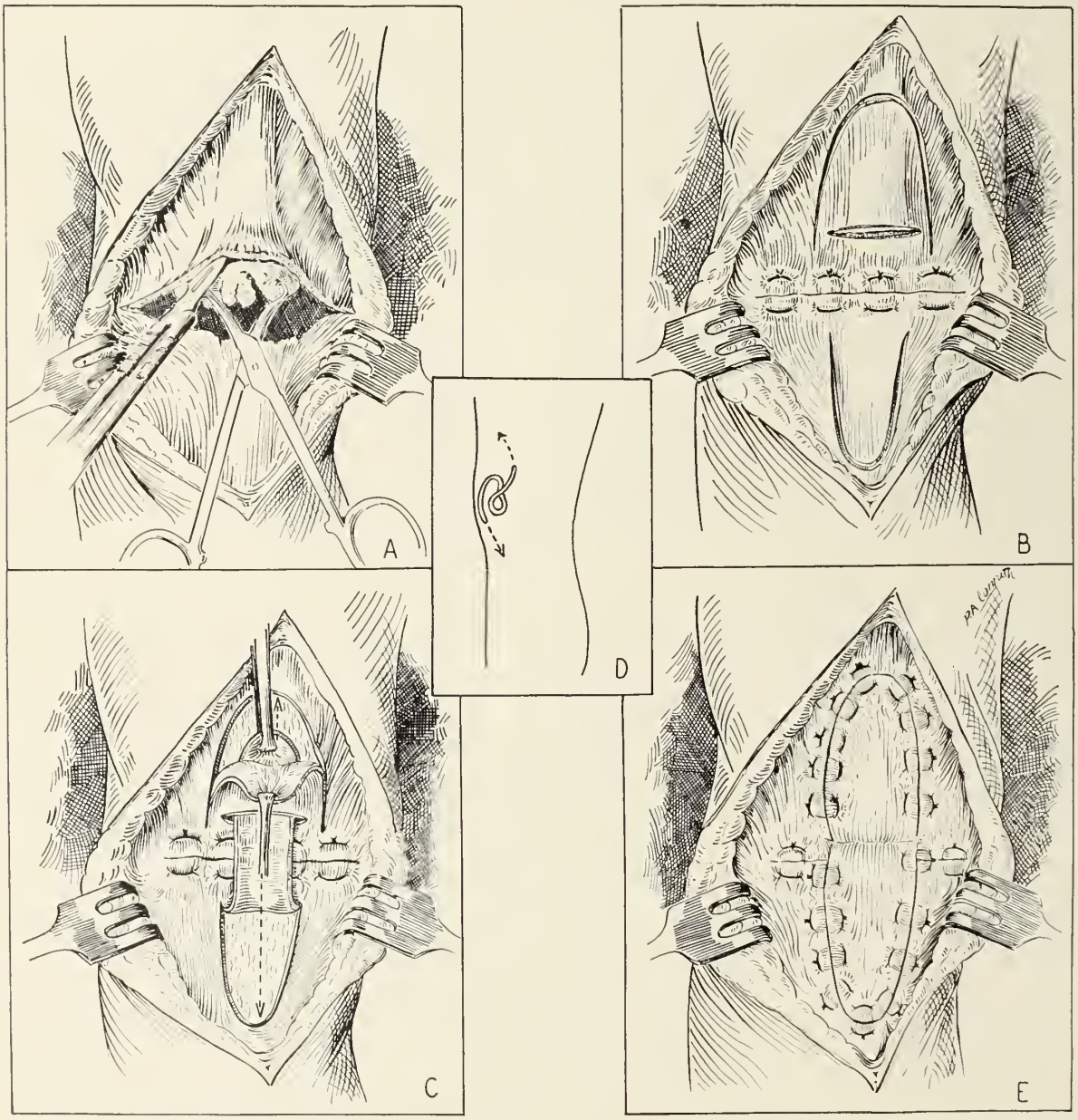
Through the upper tongue a transverse slit is made (fig. 1B) of sufficient length to allow passage of the lower tongue through it (figs. 1C and 1D), after which the lower or patellar tongue is fixed above in the bed from which the quadriceps tongue was taken and similarly the quadriceps tongue is folded downward and fixed distally. Interrupted mattress sutures of number two silk are used throughout this step of the procedure (fig. 1E).

The knee is flexed to right angles before closure to test the stability of the operative procedure.

Two one quarter inch thickness felt pads 8 by 4 inches in size are placed along the medial and lateral aspects of the knee joint. This is supplemented with a gauze pressure dressing and maintained with an elastic bandage.

Active motion of flexion and extension is insisted upon immediately postoperatively. This is followed by weight bearing using crutches for the purpose of balance and support twenty-four hours after operation. Full weight bearing without crutches is begun on the tenth postoperative day.

We feel that this plastic procedure may be effectively utilized in all fractures of the patella treated surgically in which there exists a complete tear in the quadriceps aponeurosis, whether one employs total excision of the patella, partial patellectomy or fixation of the patellar fragments.





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REPORT OF CASES

Case 1. N. C., a 25 year old white male, was admitted to the hospital on July 10, 1949, following a motorcycle accident. Roentgenograms revealed comminuted fracture of the mid one third of the left femur; oblique fracture through the distal end of the left wrist with complete dislocation of the proximal phalanx of the first metacarpal of the thumb; complete transverse fracture through the midportion of the right patella with 50 per cent anterior displacement of the lower fragment.

The femoral shaft fracture was treated with balanced traction. The wrist was reduced and immobilized in plaster. A patellectomy and plastic procedure were performed on July 25, 1949. Action flexion of 30 degrees with no pain was obtained on the first postoperative day. The patient was able to raise the heel off the bed a height of three inches with the leg fully extended.

Hip splica was applied on August 26 for fracture of the left femoral shaft, leaving the right knee free. A sling apparatus was employed so that the patient could exercise the right knee. On October 31, there was range of motion of 90 degrees flexion to full extension. Quadriceps power was strong.

Case 2. T. J., a 37 year old white male, was admitted to the hospital on July 11, 1949, with a history of injury to the right knee due to a fall. Roentgenograms revealed a complete transverse fracture through the patella with distraction of the fragments. Patellectomy and plastic procedure were performed on July 15, 1949. The patient complained of moderate pain in the right knee joint on July 16. He had been flexing the knee actively while in bed. He was placed on crutches on July 16. On July 20, the patient demonstrated 30 degree flexion. On the following day he was able to flex the knee to 45 degrees. Eight days postoperatively, the patient was able to walk without crutches but used them the greater part of the time. The patient was discharged, walking, on the tenth day following operation.

Case 3. G. K., a 46 year old white male, was admitted to the hospital on September 17, 1949, after having sustained a fall. Roentgenograms revealed a transverse fracture through the midportion of the right patella with displacement of both fragments. Patellectomy and plastic procedure were performed on September 22. The patient was on crutches until the fourteenth postoperative day when he was discharged walking. The record states that the range of motion was good but does not indicate the degrees.

Case 4. L. R., a 26 year old white male, sustained a comminuted fracture through the midportion of the right patella with distraction of the fragments in an automobile accident on September 26, 1949. Patellectomy and plastic procedure were done on September 29. He was up on crutches on the second postoperative day with no complaints. He was discharged walking on the tenth postoperative day with range of motion from 60 degrees flexion to full extension.

Case 5. G. W., a 60 year old white male, was admitted to the hospital on December 25, 1949, after having been struck by an automobile. Roentgenograms revealed a complete transverse fracture through the midportion of the right patella with wide separation of the fragments. Patellectomy and plastic procedure were performed on December 30. Sutures were removed on the eighth postoperative day. The records state that range of motion was good. He was discharged with crutches, but with full weight bearing, on January 9, 1950.

SUMMARY

A new type of plastic operation in fractures of the patella is presented which was used in five cases in which there occurred a complete tear of the quadriceps aponeurosis.

The technic employed is described together with the case reports on this procedure. The age range of these patients was from 25 to 60 years. No final evaluation was made at this time, but this will be reported at a later date in addition to new cases on which this procedure will be exercised.

It is felt that the plastic operation may be used effectively in all fractures of the patella treated surgically in which there exists a complete rupture of the quadriceps aponeurosis.

A. M. A. COUNCIL STRESSES NEED FOR AMPLE VITAMIN C INTAKE

The need for a reliable intake of vitamin C in foodstuffs to prevent "rundown" conditions is stressed in a report of the Council on Foods and Nutrition of the American Medical Association.

The report, written by Charles Glen King, Ph.D., of the Department of Chemistry, Columbia University, and Nutrition Foundation, Inc., New York, is published in the February 25 *Journal of the American Medical Association*. It is one in a series on nutrition under preparation, according to Dr. James R. Wilson, Chicago, council secretary.

"During infancy and early childhood, as soon as breast feeding has been discontinued, provision should be made for a regular intake of vitamin C, either in the milk formula or in a specific supplement," says the report.

"Ascorbic acid can be incorporated readily in powder or tablet form in formulas, and it is generally a simple matter to provide an adequate supply of vitamin C through the use of orange juice, grapefruit juice, tomato juice—and beyond infancy—cantaloupe, strawberries, lemon juice, bananas, green leafy foods or green beans and peas."

The council says that if an infant is breast fed there is virtually no risk of a vitamin C deficiency. Cow's milk without a specific supplement, on the other hand, involves a relatively high risk of deficiency. Elderly persons living alone and using foods that can be purchased, stored and prepared in simple fashion often use foods extremely low in vitamin C content.

Among the signs of this deficiency are altered tooth and bone structures, slow healing of wounds, decreased capacity to combat infections, reddening and tenderness of gums, muscular weakness, loss of weight and anemia.

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Postgraduate Review

THE "Rh" PROBLEM

A Discussion of Pertinent Questions

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THE DISCOVERY of the "Rh factor" by Landsteiner and Weiner[1] in 1940 and the proof by Levine and his colleagues[2] the next year of its place in the etiology of the syndromes assembled under the heading of "erythroblastosis fetalis" has led to a welter of articles on all phases of the subject. In spite of all the work done in this field, the unanswered questions predominate. In fact one is more acutely aware of his ignorance and confusion now than before these discoveries were made.

The laboratory tests developed to study the Rh problem have themselves confused the issue for the profession in general. The purpose of this presentation is to set forth the uses and limitations of such tests and the fundamental concepts by which each is interpreted. There is urgent need for more intelligent study of all cases of iso-immunization if remedial measures are ever to be discovered and evaluated.

1. WHAT DOES A LABORATORY REPORT OF "Rh POSITIVE" OR "Rh NEGATIVE" MEAN?

The use of the term "Rh" is confusing and, for clarity, as far as the printed page is concerned, it is better avoided. There are six different antigens in this category* that may occur in human erythrocytes. These have been designated as C (or Rh′), D (or Rh_0), E (or Rh″), c (or Hr′), d (or Hr_0) and e (or Hr″). The English system employing C, D, E for the "Rh" antigens and c, d, e for the "Hr" antigens is in our opinion easier to visualize and comprehend, continuing as it does from the A-B designation of the major blood groups.

Depending upon hereditary factors, there may be almost any combination of the antigens C, D, E, and c, d, e.

The specificity of the typing sera used varies in different laboratories. Some use serum which will agglutinate erythrocytes containing D (Rh_0), the so-called 83 per cent serum. Others use CD (Rh_0') serum, or the so-called 87 per cent serum which will cause agglutination of erythrocytes containing C or D or both. In interpreting results it is important to know which serum the laboratory uses. In fact, the laboratory report should show which antigen or antigens they have found present when they report a "positive." An "Rh negative" report means that the particular antigen tested for in the laboratory was absent.

From the Department of Obstetrics and Gynecology, St. Louis University School of Medicine, St. Louis.

*Actually, there are still others: C^w, and D^u.

Presented before the St. Louis Gynecological Society, February 9, 1950.

2. WHY IS THE SAME PATIENT SOMETIMES REPORTED "POSITIVE" BY ONE LABORATORY AND "NEGATIVE" BY ANOTHER?

Weak typing sera may be a factor. However, as can be derived from the discussion of question 1, such a report is possible with potent sera also. A patient whose erythrocytes contain C but not D would be reported "negative" by the laboratory using anti-D (Rh_0) serum, and "positive" by the one using anti-CD (Rh_0') serum.

3. CAN AN "Rh POSITIVE" WOMAN HAVE AN ERYTHROBLASTOTIC INFANT?

Yes. It should be understood that, potentially, one can be immunized by any of the antigens not contained in one's red cells. Therefore, a woman whose cells contain C, but not D or E (and who is reported "Rh positive" by a laboratory employing anti-CD serum) may produce antibodies to D and E or E. If she were sensitized to either or both D and E, and the antigens were in the red cells of her fetus, she could give birth to an erythroblastotic child.

The same outcome also may be the result of an ABO incompatibility[3] in an "Rh positive" woman, but this is outside the scope of this discussion.

Similarly, a woman whose cells contain no c antigen can be sensitized to this factor by a fetus having it. Such cases sometimes are designated "Hr" incompatibilities, and have been reported but they are rare because c is a relatively weak antigen.

4. WHAT IS THE MEANING OF "HETEROZYGOUS-" AND "HOMOZYGOUS Rh POSITIVE"?

These terms may be said to indicate whether a person is "whole-blooded" or "half-blooded" as far as a given "Rh" antigen is concerned. In an effort to determine whether a sensitized woman could possibly conceive an "Rh negative" child sired by the husband, the genotype of the husband is checked and, is possible, his parents. For example, if both the paternal parents are homozygous for D, then the father is homozygous. If the parents are heterozygous for D, the potential father may or may not be heterozygous.

The genotype of any person may be guessed from the reaction to the available antisera for C, D, E and c. According to the computations in table 1 by Race[4] one can evaluate the accuracy of such a report.

5. WHAT TESTS GIVE AN INDICATION OF THE PRESENCE OF "ANTI-Rh" ANTIBODIES?

The test for "saline agglutinins" determines the presence of agglutinating or "complete" antibodies. In this test the patient's serum is added to cells suspended in saline solution. But if "blocking" antibodies are present any saline agglutinins may be masked.

The test for "blocking" antibodies is done when the test for saline agglutinins is negative. In the

more severe types of sensitization, or iso-immunization, "blocking" antibodies are present. They so coat the erythrocytes that when suspended in saline solution in the presence of potent anti-Rh serum, agglutination is prevented.

The "conglutination test" devised by Weiner[5] is sensitive to blocking antibodies, and by serial dilutions (in a protein medium) of the serum being tested an attempt is made to arrive at a "titer."

The Diamond and Abelson slide test is a qualitative determination for iso-immunization, positive in the presence of blocking antibodies.

The Coombs, or antihuman globulin, test is based on the fact that serum from an animal (sheep), sensitized to human globulin, will cause agglutination of red cells coated with anti-Rh antibodies. The test picks up any kind of Rh antibodies. It is nonspecific since other globulins on erythrocytes may give a positive reaction. However, a positive finding using the cells of a newborn infant may be assumed to be due to Rh antibodies, particularly when the parental types fit the picture. In rare instances groups K or S may be involved.

The "direct" Coombs test is the one just described. The "indirect" Coombs test is used to examine the sera of patients suspected of having Rh antibodies. In this instance type O Rh positive cells are incubated with the patient's serum to allow them to become coated with the antibodies. These cells are then tested, after proper washing, with the antihuman globulin serum as in the direct test.

Modifications of this procedure, using serial dilutions of the serum to be tested, have been employed for a quantitative test in an effort to arrive at a "titer." This test is probably more sensitive than other antibody determinations.

6. ARE THERE DIFFERENT TYPES OF ANTIBODIES, AGAINST D FOR EXAMPLE?

Yes. (1) There are agglutinating antibodies, the so-called complete antibodies, as mentioned in question 5. Some maintain these do not cross the placental barrier because of their large molecular size. (2) The "blocking" antibodies also are discussed in question 5. These pass the placental barrier and are credited with producing the bulk of the fetal damage. (3) Still more incomplete antibodies, the so-called "cryptagglutinoids,"[8, 9] are most easily demonstrated by the Coombs test (discussed in question 5). They cause neither blocking nor agglutination in vitro, and their clinical import has not been established.

The agglutinating and blocking antibodies, at least, are specific for each antigen. It is thus possible for a mother to carry perhaps four to nine different types and specificities of antibodies, particularly if the sensitizing bloods were not all of the same genotype.

It becomes obvious, therefore, that there will be considerable variation in the "titers" as reported by a laboratory using the conglutination method depending on the relative strength and specificity of the individual antibodies together with the genotype (or genotypes) of the test cells.

Likewise, since the genotype of the baby must remain unknown until birth, the determined antibody level may or may not be a measure of the antagonism against the fetal cells.

Consequently, there are many pitfalls to using the titer in prognosticating the degree of fetal involvement.

Table 1. *The Errors Involved When the Genotypes Are Guessed From the Reactions of Anti-C, Anti-D, Anti-E and Anti-c.*

Reaction of blood with: Anti-C	Anti-D	Anti-E	Anti-c	First guess	Reasonably common alternatives	Approximate errors in: (1) Unselected persons	(2) Fathers of children with hemolytic disease
+	+	—	+	CDe/cde (32.7%)	CDe/cDe (2.2%)	6%	21%
+	+	—	—	CDe/CDe (17.7%)	CDe/Cde (0.8%)	4%	1%
—	+	+	+	cDE/cde (11%)	cDE/cDE & cDE/cDe (2.7%)	20%	49%
+	+	+	+	CDe/cDE (11.9%)	CDe/cdE & cDE/Cde (1.3%)	10%	3%
				In the following 7 combinations representing the most common genotype in each reaction group the errors are very small.			
—	—	—	+	cde/cde			
—	+	—	+	cDe/cde			
—	—	+	+	cdE/cde			
+	—	—	+	Cde/cde			
+	+	+	—	CDe/CDE			
+	—	+	+	cdE/Cde			
+	—	—	—	Cde/Cde			
Percentage frequency of positive reactions given by these sera: 68	83	29	81				

7. DOES A POSITIVE MATERNAL ANTIBODY TITER MEAN THE BABY WILL BE ERYTHROBLASTOTIC?

Not necessarily. The antibodies may persist from a previous pregnancy or transfusion. If the first titer is taken in the last trimester of pregnancy, one has no way of determining whether or not the antibodies were produced in that pregnancy. Even if the previous child is Rh positive and did not have erythroblastosis, the antibodies could still persist from that pregnancy. This is true because the titer may have risen too late in that pregnancy to have affected the baby, or the antibodies may have been produced in the puerperium. The same holds true for a primagravida previously transfused with Rh incompatible blood.

If the fetus is Rh negative (cde/cde) in such instances, or if the cells do not contain the factors specific for the maternal antibodies, the baby will not have erythroblastosis. For example, if the antibodies are against D and E, and the baby has only C, it will not be involved.[10]

8. DOES A NEGATIVE MATERNAL ANTIBODY TITER RULE OUT ERYTHROBLASTOSIS IN THE NEWBORN?

In general, yes; particularly if the Rh antibody determination is accurate and is found negative a

few days prior to or at the time of labor. However, major group incompatibilities occasionally produce erythroblastotic babies. For example, a type O Rh positive mother carrying an A, B or AB fetus (Rh positive) may deliver an erythroblastotic baby.[11, 12, 13] Other incompatibilities even more rarely may be responsible, as for example, K, Cellano or S.[14, 15]

9. HOW ACCURATE ARE Rh ANTIBODY "TITERS"?

Their accuracy can in no way approach those of chemical tests such as blood sugar, or nonprotein nitrogen. The end-points depend upon the presence or absence or agglutination, and this is not a clear cut phenomenon. Some workers can "see" agglutination where others do not. Much, therefore, depends upon the judgment and training of the technician, the concentration of the suspended cells and the medium in which they are suspended. In general higher "titers" have been found when normal adult human serum was used than when 20 per cent bovine albumin was added.

The specificity of the cells used in the test with relation to that of the antibodies in the serum being tested is also an important factor. For example, cells of genotype cDE/cde when used to test the serum of a patient with antibodies against C and D would yield a lower "titer" than if tested with cells of genotype CDe/CDe.

Ordinarily if the test is properly performed in the same laboratory, under identical conditions, by the same technician readings should not vary more than one tube in serial dilutions. However, this might appear to be quite a variation in higher titers where one tube would be the difference between 1:512 and 1:1024. Between different laboratories much greater disparity will be found to exist, especially if proper controls are not set up. For this reason it is difficult to evaluate case reports from all over the country. (See also discussion to question 6.)

10. DOES A RISING TITER MEAN THE WOMAN CARRIES AN Rh POSITIVE BABY?

No. Mollison[16] states that, "if the titer increases around twenty-fold or more, it can be considered extremely likely the infant in utero is Rh positive—." One of our patients, M.J., with a history of three erythroblastotic babies, the last two being fatally involved, presented herself two and one half months pregnant with a conglutination titer of 1:64. By the time she reached term the titer was varying between 1:1024 and 1:2048. Levine's laboratory reported 1:1024. She delivered a normal Rh negative infant at term. Other such cases have been reported.[10]

11. DOES A FAIRLY STATIONARY TITER THROUGHOUT PREGNANCY MEAN THE BABY WILL BE Rh NEGATIVE?

No. Some patients seem to reach a certain level beyond which they do not go and this may be only 1:32 or 1:64. However, such a titer is high enough to produce a fetal hydrops, or fatally involved nonhydropic erythroblastotic baby. The duration of such a titer can be more important than its height.

12. CAN ONE PREDICT THE PROBABLE DEGREE OF FETAL INVOLVEMENT FROM STUDY OF THE MATERNAL TITERS?

No. Not even all Rh positive babies are involved to the same degree by a given titer. In general, the higher the titer and the longer it exists throughout pregnancy, the more severe the degree of involvement. Attempts have been made[17, 18] to correlate these factors with a view toward predicting the fetal condition. But for an isolated case they are unreliable, and exceptions to the rule are not rare. More thoroughly followed cases must be reported before the picture can be clarified. Such studies must include the titers of the specific antibodies along with the genotype of the baby.

13. IS IT POSSIBLE AT PRESENT TO GET COMPLETE BLOOD STUDIES IN COMMERCIAL LABORATORIES IN MISSOURI?

We know of no such laboratories. Even if these studies could be made, the number of tests required to follow a case would make the cost prohibitive in most instances. One or more central laboratories, subsidized by some means and staffed by specially trained personnel, would be required for proper studies. Ideally, all cases checked by the central laboratory should be followed according to an established schedule which would result in worth-while clinical observations.[19]

14. WITH THE FACILITIES NOW GENERALLY AVAILABLE WHAT TESTS ARE SUGGESTED?

A suggested minimum would include:

1. Rh typing of all obstetric patients.
2. Typing of husbands of women found to be Rh negative.
3. Titers on Rh negative primigravidae with Rh positive husbands at about eight months gestation. (It is assumed that these give no history of possible iso-immunization by transfusion, plasma, or intramuscular blood.
4. In multiparae obtain a titer as early as possible and repeat about twice during the first six months, and monthly thereafter, the last being as near term as possible. In general, if the baby can be delivered three weeks or less from term and is exposed to antibody titers over 1:4 for less than 6 weeks, it will be mildly involved if at all.
5. In primigravidae, with a history of possible previous sensitization, the same program should be followed.

Such studies will enable one to be prepared, when necessary, for intensive treatment of the baby. They do not constitute a complete workup, and departures from the predicted will occur frequently.

15. WHAT CAN BE DONE TO PREVENT ISO-IMMUNIZATION?

The most important single factor is the complete typing of female recipients from birth to the menopause, as well as their donors.

In addition to the necessary checks for ABO incompatibility, CDE compatibility also should be insisted upon whenever the time factor does not preclude it.

For example: a recipient, genotype Cde/cde is typed with anti-CD (RH_0') serum and found to be "Rh positive." She is given Rh positive blood that happens to be genotype cDE/cDE. She becomes sensitized to D and E. She later conceives a baby whose cells contain D and E or E and loses it with erythroblastosis. Or she is given cDE/cDE blood later and suffers a fatal reaction.[20]

Another example: A recipient, genotype cde/cde (Rh negative) is given "Rh negative" blood tested only with anti-D (Rh_0) serum. The donor turns out to have C and E or E and the recipient is sensitized. If a child is later conceived whose red cells contain one or both of these factors it might be involved fatally.

Similar sensitizations can occur with the cde antigens, or with the Cellano factor, but their rarity justifies disregarding them.

16. IS THERE ANY METHOD AT PRESENT AVAILABLE FOR TREATING MOTHERS DURING PREGNANCY TO REDUCE THE SEVERITY OF THE DISEASE IN THE BABY?

No feasible method has as yet been established.

17. WHAT OF CESAREAN SECTION TO INCREASE FETAL SALVAGE?

The use of cesarean section has been largely discredited.[21] If the woman has lost several babies from erythroblastosis and in the present pregnancy carries one of identical genotype, the outlook for the baby is not good enough to justify subjecting the woman to a section. If the baby should turn out to be Rh negative, then the section would be unnecessary. In such cases an Rh positive baby has been exposed to strong antibodies throughout pregnancy, and it is being optimistic to believe that reducing the exposure by three weeks is going to make much difference in the outcome. If one tries to deliver the baby even earlier, then he has two conditions to combat, prematurity and erythroblastosis. It would be a tragedy to lose an Rh negative baby from prematurity of one's own making.

When it seems that delivery, say three weeks early, is advisable, labor usually can be instituted by medical induction and rupture of membranes as many of these patients are gravida III or more. We have seen nothing to indicate that antibodies are "squeezed out" into the baby as sometimes has been stated in justifying cesarean section over normal delivery.

It is true, however, that an unsuccessful medical induction may cause more fetal cells to enter the maternal circulation with a resulting increase in antibodies. This may increase the degree of fetal involvement particularly in stances in which the titer has been positive a month or so already.

CONCLUSIONS

1. An attempt is made to answer the more common questions arising in the field of Rh sensitization.

2. From these answers certain things become apparent

a. There is much more to the proper study of a case of Rh incompatibility than "running an Rh and a titer."

b. The studies made in most cases of iso-immunization are sketchy at best. They are comparable to an occasional urine examination in the study of a diabetic. Accurate evaluation of many problems is therefore impossible.

c. The complexity of the subject is greater than generally realized.

3. Reasons are indicated for the great variations in titers, and the variable relationships between these and the fetal outcome. Titers although reported in numerals are not accurate in the sense that blood sugar determinations can be accurate.

4. The limitations of the various tests are outlined. They fall short in accurately prognosticating the outcome in a given case.

5. Suggestions are given as to how cases should ideally be studied if the whole problem is ever to be elucidated.

6. A bare minimum program is outlined, directed toward adequate preparation for treating the newborn.

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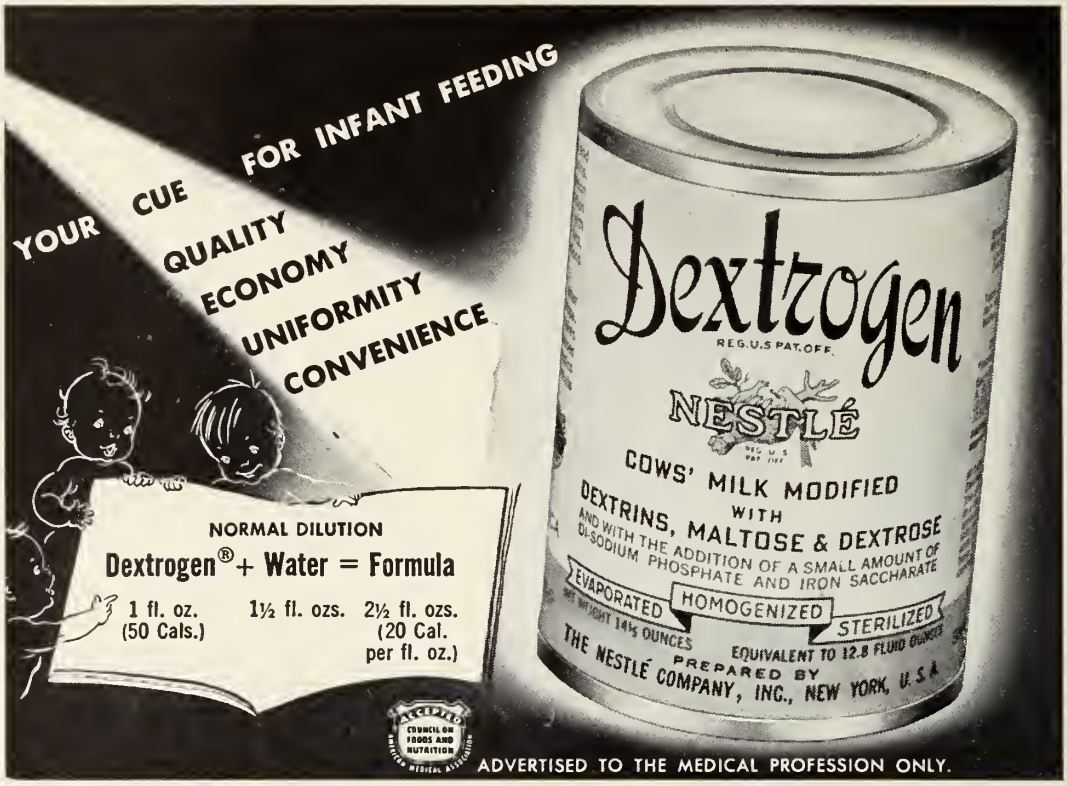
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PRESENTATION OF CASE

WHITE FEMALE, aged 72, first entered the hospital in October 1948.

Chief Complaint.—Swelling of the ankles for three months.

Present Illness.—Illness began in February 1948 when the patient noted that stools were light in color, loose and foamy, no melena. In May 1948 she notice that her skin and sclerae were a faint yellow. The urine was noticeably dark and stools were still light and foamy. In July 1948 she noted anorexia and weight loss. In September her abdomen enlarged and her ankles began to swell. In November 1948 she was admitted to the hospital for study. At that time her weight had decreased from 120 to 99 pounds.

Regional History.—She had had malaria as a child without recurrence. She had been told that she had had rheumatic fever. There were no cardiac symptoms. Appetite had always been good until July 1948. She tolerated all food. There had been two or three light colored foamy stools per day for the last six months.

Physical Examination.—The skin showed jaundice and there was evidence of weight loss. Tongue was coated and reddened at the margins. An apical systolic murmur was heard over the entire precordium and there was a soft aortic diastolic murmur. Pulse was full and bounding. Blood pressure was 150/75. Abdomen was distended. The liver edge was palpable four fingers below costal margin. Kidney and spleen were not felt. No fluid was noted. There was 2 plus pitting edema of the lower extremities. Dorsalis pedis pulsation was good.

Laboratory Studies.—Urinalysis was normal. Red blood cells, 3,750,000; hemoglobin, 12 grams; white blood cells, 10,850. Schilling differential: 68 segments, 24 lymphocytes, 2 basophils, 5 monocytes and 1 smudge cell. Bleeding time was 1 minute, clotting time 4 minutes, prothrombin time 64 per cent of normal. Fasting blood sugar was 99 mg. per cent, nonprotein nitrogen 32 mg. per cent, total plasma proteins 5.63 grams, albumin 2.54 gms., globulin 3.01 gms. Prostigmine diastase test was flat at 107 units. Cholesterol was 170 mg. per cent; alkaline phosphatase 34.6 units. Bilirubin was 3 mg. per cent in 1 minute and 4.8 mg. per cent total. Cephalin flocculation was 2 plus at 24 and 3 plus at 48 hours. Thymol turbidity was 4.5 units. Thymol flocculation was normal. Bromsulfalein test showed 47 per cent retention of dye at 45 minutes. Kahn test was negative. Retrograde pyelograms were normal and x-ray showed the spleen to be enlarged with calcification in the region of the splenic artery.

Barium meal revealed increased prominence of gastric rugae. Electrocardiogram showed low voltage in all standard leads and was compatible with myocardial damage.

A liver biopsy showed increased fibrosis in the portal areas with some lymphocytic infiltration. Many parenchymal cells contain yellow pigment and accumulations of yellowish pigment were seen in the bile canaliculi, which was consistent with obstructive jaundice.

No specific therapy was given and the patient was discharged on November 11, 1948.

The patient was readmitted one week later because her abdomen had continued to swell and had become painful. Physical examination was unchanged except that the abdomen was enlarged and showed shifting dulness. Rectal examination revealed a tender mass anteriorly, thought to be the uterus.

Laboratory work was essentially unchanged. Five thousand cc. of yellow clear fluid with specific gravity of 1.012 per 100 cc. and an albumin content of 1.33 grams and globulin of 0.73 gms. per 100 cc. was removed by paracentesis.

Patient was treated with choline, inositol, vitamin K, Salyrgan-theophillin and demerol for pain. She was discharged from the hospital on February 16, 1949.

The patient was next admitted to the hospital on June 17, 1949, with ascites, generalized itching, jaundice and pain in the right upper quadrant and edema of the ankles. She had been an invalid since the last admission.

Physical examination was unchanged except for deepening of the jaundice, increased ascites and emaciation.

Laboratory Study.—Urinalyses were repeatedly normal. Red blood cells were 4,150,000 and hemoglobin 14.2 gms. Hematocrit 41. White blood cells were 9,800 and differential was normal. Prothrombin time was 76 per cent of normal. Albumin was 3.26 gms. per 100 cc., globulin 2.77 gms., diastase 94 units, cholesterol 260 mg. per 100 cc. Sugar was 90 mg. per cent, and nonprotein nitrogen 33 mg. per cent, alkaline phosphatase 40.1 units and 1 minute bilirubin was 11.0 mg; total was 15.5 mg.; cephalin flocculation was 2 plus at 24 hours and 3 plus at 48 hours. Thymol turbidity was 5 units and thymol flocculation was normal.

After a paracentesis the liver was palpated four fingers below the costal margin, firm, nontender and nodular. A soft fluctuant mass, thought to be the gallbladder, was felt below the liver edge. A flat plate of the abdomen revealed no opacities in the area of the gallbladder.

During the succeeding two months the patient required repeated paracentesis. Repeated cytologic examinations failed to show malignant cells. The patient gradually became stuporous, comatose and the 1 minute bilirubin rose to 25.6 mg. per cent with a total of 31.5 mg. per 11 cc.

The patient expired in coma on August 24, 1949.

CLINICAL DISCUSSION

R. O. Muether, M.D.: This patient, an elderly female, with a history of chronic jaundice and considerable weight loss had some cardiac findings, but the finding of chief interest is the enlarged liver, easily felt and nontender. The laboratory findings on admission were of primary importance and were consistent with an obstructive jaundice. She had a 1 minute bilirubin of 3 mg. and a total bilirubin of 4.8 mg. which means the indirect reacting bilirubin was 1.5 mg. which is about normal. The serum alkaline phosphatase was 34.6 units which is abnormally high and is consistent with an obstruction in the biliary system. It is also of interest to note that despite the duration of the jaundice there was minimal disturbance of liver function. The thymol turbidity was normal and the cephalin flocculation was only slightly altered. The bromsulfalein test revealed a 47 per cent retention in 45 minutes which was probably due to obstruction rather than functional damage. The barium meal and enema gave normal results and the needle biopsy of the liver was consistent with an obstructive jaundice. With this information in mind, a number of possible diagnoses must be considered. The first one which should be thought of is an impacted stone in the common duct, and it is extremely important in such a situation to determine quantitative stool and urine urobilinogen since, if the patient has an obstruction which is permanent and prolonged, there will be no urobilinogen in the stool and, consequently, none in the urine. By repeated examinations of the stools, it will be found that a gall stone causing an obstruction will permit periodic leakage of bile and occasionally small amounts of urobilinogen will appear in the stool. Obstruction due to a neoplasm produces a complete and permanent obstruction. Since these tests were not done, it is difficult to say whether this was or was not a permanent and complete obstruction. Next one would think of malignancy as a cause of obstruction and, perhaps, the first type that would suggest itself would be a carcinoma of the head of the pancreas, a relatively common type of malignancy which produces jaundice and weight loss.

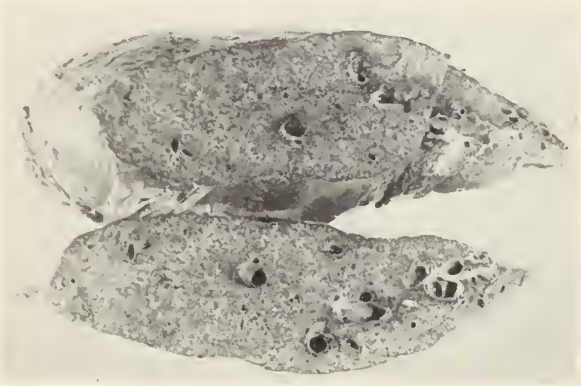


Fig. 1. Shows the much dilated intrahepatic bile ducts.

A prostigmine diastase test, which is done by injecting a milligram of prostigmine and determining the serum diastase at half hour intervals for two hours, was performed. If there is an obstruction of the pancreatic duct, the diastase will rise unless pancreatic fibrosis has occurred. A flat curve of 107 in this case indicates normal pancreatic function. Extreme fibrosis of the pancreas gives a serum diastase below 50 and usually below 35 and the diastase will stay at this level in spite of stimulation. If a gall stone or carcinoma of the head of the pancreas is ruled out, one must consider carcinoma of the ampulla of Vater, carcinoma of the bile duct, and possibly carcinoma of the gallbladder. Since no mention is made of a palpable gallbladder and since there is no information as to whether or not bile ever got through to the intestine, I do not believe a differential diagnosis can be made. It is said that carcinoma of the ampulla causes bleeding into the duodenum and, if the patient had had blood in the stool or had vomited blood, one might be justified in leaning toward that diagnosis.

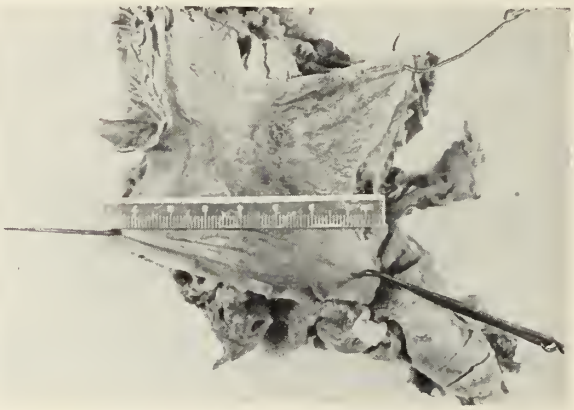


Fig. 2. Reveals the enormous dilatation of the common bile duct. Notice the pancreas on the upper left.

The fact that one did not find malignancy in the liver biopsy is not conclusive. It is possible to have metastatic lesions in the liver and to miss them when the biopsy is done, but I do not believe metastasis to the liver could account for the findings in this case since they do not ordinarily produce an obstructive type of jaundice.

The patient was admitted several times and there was little change in the situation except that the condition became worse and the laboratory tests became more definite, the alkaline phosphatase and the 1 minute bilirubin increased. It is certain that this patient did not have hepatitis. One must settle on some type of obstruction, malignant or nonmalignant. If it is nonmalignant, then it will either be a stone or a stricture or pressure from an enlargement of a lymph node. If it is malignant the lesion will be carcinoma of the ampulla of Vater, gallbladder or bile ducts, primary carcinoma of the liver being unlikely.

With these diagnoses in mind, it would seem to me that the logical thing to do would be an explora-

tory laparotomy to determine definitely the cause of the obstruction. If the patient had a malignancy, paliative operation could probably be done, moving the bile from the liver to the intestinal tract by means of the gallbladder or by transplanting the common bile duct. If a stone or some other benign lesion was found, that could be corrected. I do not know why this patient was not subjected to an operation. I presume that it was thought that the patient was either not a satisfactory risk or the clinicians who saw the patient had an accurate diagnosis and surgery was not indicated.

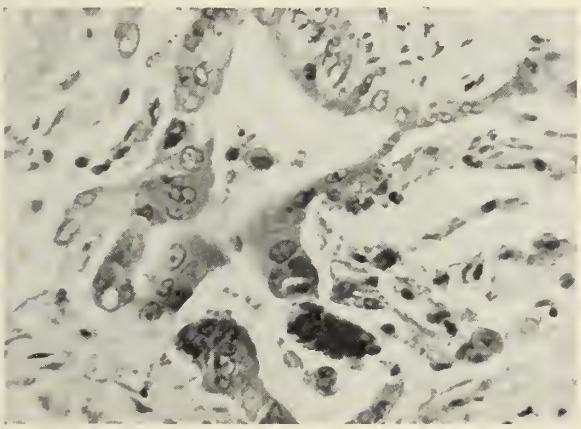


Fig. 3. Section from the mass in the ampulla showing the adenocarcinoma.

RALPH A. KINSELLA, M.D.: One point that I want to emphasize is the order of events in the history because, if one bears these things in mind, one can avoid some diagnoses and come fairly close to others. Number one is that the first thing the patient noticed was that her stools were becoming light; therefore, some interference with the output of bile was the first thing that his patient noticed. Following this was weight loss and later portal vein obstruction expressed as ascites and swelling of the legs. Of course, the jaundice developed with the decrease in the color of the stools. The liver enlarged relatively late. Now, if one thinks about the history of the case with these things in mind and in their proper order, one can see that the disease was one which blocked the bile and made the liver large. It has the progressive downhill course of malignancy or a severe nutritional disease such as cirrhosis of the liver, but the order of events is reversed from what it would be in cirrhosis of the liver. As has been pointed out, it may be impossible to place the block. There is probably no feature in this history that helps to make a certain diagnosis between a block at the head of the pancrease impinging on the ampulla and a block in some other part of the biliary tract. If one thought that this patient had a lesion in the head of the pancreas, then the enlarging liver would most likely have to be due to metastasis, but as has already been pointed out there is no way of determining just where the block is.

G. O. BROUN, M.D.: I think the reasoning on the clinical side is in entire agreement with what I would say. It is most likely some slowly developing bile duct obstruction and probably is due to a malignancy or an enlarged gland or scar tissue accumulation that is blocking the duct. I would say that while the patient had a cardiac murmur, an apical systolic and diastolic murmur, the order of events is against a cardiac cirrhosis; since ordinarily in this condition the swelling of the feet would be the first symptom and not the light stools, the swelling of feet would ordinarily precede the swelling of the abdomen. I do not think this description fits the picture of a cardiac cirrhosis

HENRY PINKERTON, M.D.: I would like to point out that in the history there was a soft mass palpated that was felt to be gallbladder, well below the liver edge, and I would like to ask if this is not an indication that the gallbladder was enlarged.

DR. MUETHER: An enlarged gallbladder would support the idea that this was an obstructive jaundice due to some cause other than a gall stone.

DR. PINKERTON: I was thinking of Courvoisier's law, that if the gallbladder is distended, it is probably not a stone because, if it was due to stone, it would be too fibrous to distend. Now, of course, the gallbladder may be fairly large with stones and I was wondering whether the mass felt was due to stones or a soft gallbladder much distended.

DR. MUETHER: Often one cannot be sure he is feeling an enlarged gallbladder but if the gall-

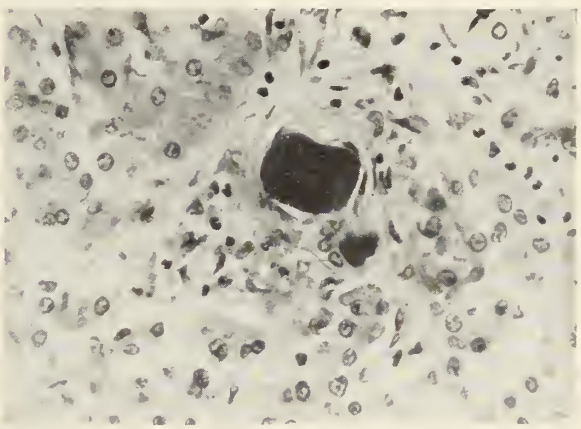


Fig. 4. Shows the dilated bile ducts filled with inspissated bile. Notice the periportal fibrosis.

bladder is definitely palpable it would most probably be so because of something other than gall stones.

WALTER A. YOUNGE, M.D.: Could this be syphilis of the liver?

DR. MUETHER: I do not believe so. We have a microscopic section of the liver which did not show syphilitic changes and the one negative serologic test is a strong point against it.

DR. KINSELLA: In syphillis I believe that hepatomegaly is a feature from the start and not a late development as in this instance.

Question: Is there any significance between an enlarged nodular liver and malignancy of the liver?

Dr. Muether: It depends on how much confidence one has in his physical examination. Clinicians feel livers that the pathologists do not find enlarged and the pathologists find livers enlarged that clinicians did not feel, and it is often difficult to be certain that there are definite nodules. If one can feel the nodules and they are well circumscribed, one must consider the possibility of metastasis, but one may have the same thing in cases of cirrhosis. I have seen two cases of syphilis of the liver and they both had one lobe enlarged which could be palpated as distinct from the rest.

Clinical diagnosis was obstructive jaundice.

PATHOLOGIC DISCUSSION

Vincente Moragues, M.D.: The significant autopsy findings were as follows: The body was deeply jaundiced, the pupils widely dilated and the lower extremities revealed definite pitting edema.

The right and left pleural cavities contained 200 and 100 cc. of thin, straw colored fluid respectively. The peritoneal cavity revealed about 8,000 cc. of thin dark brown fluid.

There was congestion and atelectasis of the lower lobes of the lungs. The heart was grossly normal. The aorta contained many atheromatous plaques.

The liver was dark green, firm, granular with some scars on the surface. It weighed 1,250 gms. On section, the intrahepatic bile ducts appeared much dilated even at the periphery of the organ (fig. 1). Much fibrous tissue was apparent about the dilated

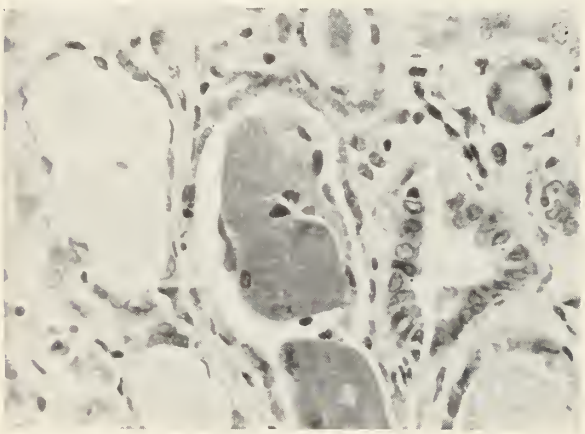


Fig. 5. Shows large, bile stained casts with some mononuclear cells about their periphery.

ducts. The common duct was dilated to about 4 cms. in diameter. It appeared as large as the duodenum (fig. 2).

There was an obstruction of the ampulla of Vater which was hard and about the size of a small thimble. A probe was passed through the opening with difficulty and with force. The ampulla was cut with the resistance of fibrous tissue. The pancreatic duct was not involved and its opening was free. The gallbladder was dilated, thin walled and contained much dark green, viscous bile. No stones were found.

The pancreas was grossly normal. The spleen had some adhesions of the capsule to the diaphragm, weighed 230 gms. and was congested. The stomach and the intestinal tract were normal. The right and left kidneys weighed 150 and 170 gms. respectively. The surfaces were granular and green, and revealed many small retention cysts. Ureters, bladder, genitalia and adrenals were essentially normal.

Sections from the ampulla of Vater revealed an

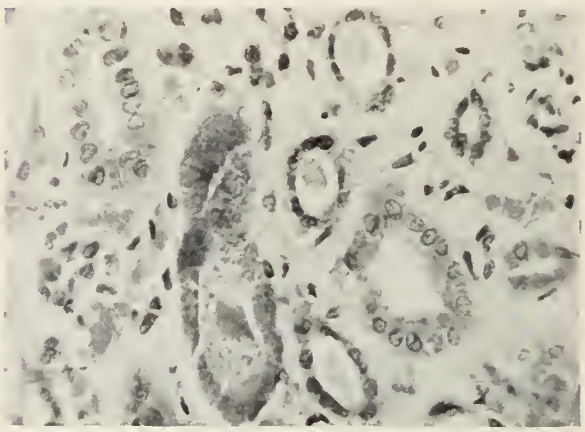


Fig. 6. Shows a large convoluted tubule with many bile granules in the lining cells.

infiltrating mass of large columnar epithelial cells with some attempt at gland formation (fig. 3). These tumor cells were invading the stroma and the perineural spaces.

The liver sections contained a great deal of inspissated bile in dilated bile ducts. Much fibrosis was evident in the portal spaces, giving a picture of biliary cirrhosis (fig. 4).

Some of the pancreatic ducts were slightly dilated and a mild fibrosis was present. A small area of fat necrosis was found in the surface of the pancreas.

Sections of kidney revealed many bile stained casts in the convoluted and collecting tubules (fig. 5). Bile pigment was present in the cytoplasm of the tubular cells (fig. 6). There was a cystic dilation of some of the convoluted tubules. The renal arteries showed some thickening and fibrosis.

The final anatomic diagnosis was:

1. Adenocarcinoma of ampulla of Vater, no metastases present.
2. Obstructive jaundice with dilatation of the entire biliary duct system.
3. Biliary cirrhosis.
4. Ascites and bilateral hydrothorax.
5. Cholemic nephrosis.

From the postmortem findings it can be seen clearly that a surgical exploration with resection, or simply a palliative anastomosis, might have been of great help in this case.

At autopsy, carcinomas of the ampulla are usually under 1 cm. in diameter and reveal no metastasis. The average duration of life from the onset of jaundice, in the unoperated case, is eight months,

but some cases have gone up to three years. These facts help one to understand why, even with palliative surgery, these patients may enjoy years of comfortable life and eventually die with metastases.

DR. PINKERTON: These carcinomas of the ampulla of Vater are similar histologically to the duct carcinoma of the pancreas, carcinomas of the gallbladder, carcinomas of the common duct and to intrahepatic carcinomas derived from the bile ducts and known as cholangioma. They are all derived from the same embryologic type of epithelium. This case illustrates well the importance of location of the tumor in determining its effects. The ampulla of Vater is, of course, a critical location because complete occlusion there leads to jaundice which is incompatible with life for any great period of time. Some tumors, as is known, are malignant by position and others are malignant histologically and there are rare tumors of the ampulla which are histologically benign and malignant only by position. Here is a tumor which is malignant both by position and by histology. It is rather unfortunate that a carcinoma of the head of the pancreas or a carcinoma of the ampulla of Vater, although diagnosed promptly by the early production of symptoms, is so difficult to correct by surgical intervention. On the other hand, carcinoma of the tail of the pancreas, which is silent for a long period of time and usually does not produce symptoms until it is large could, if it were detected early, be treated quite effectively by surgical operation because the distal third of the pancreas is not at all essential to life.

I hope that Dr. Sherwin will discuss the surgical treatment of this type of case. I believe that exploration should have been carried out; one never knows what is going to be found when a laparotomy is done. I recall a case not many years ago of a patient in whom there was obstructive jaundice in which an exploration was done and in which there was found an enlarged lymph node causing pressure on the common duct. It is much easier to relieve this type of obstruction than that which is caused by a mass in the biliary system. In this case the cause of the enlarged lymph node was sarcoidosis.

SURGICAL DISCUSSION

CHARLES SHERWIN, M.D.: When one does explore a case such as this, one notes the dilated gallbladder and common duct and, if there has not been too much inflammation due to previous cholecystitis or a perforation which has healed spontaneously, one usually is able to palpate any thickening which has taken place around the ampulla. With an area of thickening as described here, one should have been able to locate it at operation. The problem of reconstruction in this type of case is similar to that seen when the common duct is removed or occasionally ligated during surgical procedures. The duodenum can be opened without any great surgical risk and the ampulla inspected and if there is a stone it can be removed through the duodenum more safely than through the common duct.

The difficulties come when there is a malignancy of the ampulla and a common opening for the pancreatic and the common bile duct. Here one must sacrifice the pancreatic duct as well as excise the area in the duodenum which is involved. One can anastomose the common duct into the duodenum above the site of the original opening but the pancreatic duct has to have certain things done to it. The common method is to anastomose it into the jejunum, but this may give a great deal of leakage. A number of years ago, Dr. Tripodi and I devised an operation for the implantation of the pancreatic duct into the stomach. Our experimental animals went along nicely and at autopsies the anastomoses were found to be functioning. Brunswich, in his book on pancreatic surgery, has given us credit for that pioneer work. Neither of us have ever been able to find a patient in which this procedure was indicated. The Whipple operation, which excises the end of the pancreas and plants it into the duodenum and then excises part of the duodenum and stomach, closes the duodenal opening and anastomoses the common duct into it, and then anastomoses the pyloric end of the stomach further down, is a formidable procedure. Because some of these tumors are sensitive to radiation, I believe that if the primary growth cannot be removed, anastomoses of the common duct or the gallbladder to the duodenum and radiation are indicated.

A. M. A. COUNCIL SUMMARIZES RESEARCH ON VITAMIN E THERAPY

Protagonists of Vitamin E therapy have not reported any results derived from critical clinical tests, says a report of the Council on Pharmacy and Chemistry of the American Medical Association. The report, which appears in the February 18 *Journal of the American Medical Association*, says in part:

"More than three years ago, stories appeared concerning a remarkable new treatment for patients with circulatory disease. The treatment was said to have been discovered by some investigators in London, Canada. It was alleged that large doses of vitamin E could effect remarkable recoveries in patients with a wide variety of cardiovascular disorders who had not been benefited by more orthodox therapy.

"The protagonists of vitamin E therapy have not reported any results derived from critical clinical tests, although medical and lay literature contain reports which, to the uncritical, might appear to lend support to the hypothesis that vitamin E is useful in the treatment of heart disease.

"It is regrettable that the hopes of sufferers from heart disease and other cardiovascular conditions, as well as those of countless diabetic persons, should be falsely raised by unbridled enthusiasm."

The A.M.A. report cites a number of "carefully conducted and adequately controlled" studies which, according to the Council on Pharmacy and Chemistry, failed to substantiate early reports of the usefulness of Vitamin E in heart disease and diabetes.



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Case Report

LOEFLER'S SYNDROME

ALLEN L. SPAFFORD, M.D.
KANSAS CITY,

In 1932 and again in 1936 Loefler,[1] of Switzerland, reported cases of transitory pulmonary infiltrations associated with high blood eosinophilia and mild clinical course. Since that time various other reports of this triad have appeared in the literature and the term "Loefler's syndrome" has been affixed to it.

The etiologic factor involved in Loefler's syndrome has not been ascertained but, from a search of the literature it is quite evident that a vast majority of instances reported have been in asthmatic individuals or in those with other allergic manifestations.

A cardinal criterion in this symptom complex is the eosinophilia. Wintrobe[2] has compiled painstakingly the following causes of eosinophilia: (1) allergic disorders, bronchial asthma, urticaria, angioneurotic edema, hay fever; (2) skin diseases; (3) parasitic infestations, especially parasites which invade tissue as trichinosis, echinococcus disease; (4) certain infections as scarlet fever, chorea, erythema multiforme; (5) certain diseases of the hemopoietic system as chronic myelocytic



Fig. 1. Roentgenogram made March 4, 1949, shortly before onset of acute symptoms.

leukemia, erythremia, Hodgkin's disease, after splenectomy, pernicious anemia; (6) following irradiation; (7) miscellaneous disorders as periarteritis nodosa, Loefler's syndrome; (8) as a familial anomaly, and (9) tropical eosinophilia.

Another cardinal symptom is the transitory infiltration involving the pulmonary tissue. The mechanism at present is unknown; however, most authorities are in agreement that it is an interalveolar edema brought about by damage to the capillaries of the lungs by hypersensitivity to an extrinsic allergen.

According to Pearlman,[3] the roentgen examination of the chest usually shows a well defined area of infiltration, most often but not always in the lower lung fields. The infiltration may be single, multiple, unilateral or bilateral and may be resolved completely in one week or may persist for four weeks or longer. Cattaneo[4] reports the sub-



Fig. 2. Roentgenogram made April 25, 1949, about the time of acute onset, showing bilateral pulmonary infiltrations involving especially the left lung.

clavicular area of the right lung as most often involved. As pointed out by Rubin,[5] upper lobe infiltrations of the type mentioned, if they persist for several weeks or months, may simulate tuberculosis since a moderate increase in eosinophils is not uncommon in early tuberculosis. Lower lobe infiltrations simulate atypical or viral pneumonia.

The pathology has been described by various observers. Bayley, Lindberg and Baggenstoss[6] have reported a case of Loefler's syndrome in which it was possible to study the postmortem findings. The histologic features of the pulmonary lesions were the large number of eosinophilic leukocytes in the pneumonic exudate, the extensive vascular lesions especially necrotizing arteritis and the presence of peculiar granulomatus lesions.

Faison[7] reported a case in which the eosinophilia continued for eleven months. In his survey of the English literature, of sixteen cases accepted as Loefler's syndrome, fourteen had asthma or a history of asthma and one had urticaria. In his case he gave an autogenous vaccine, combining streptococcus hemolyticus, streptococcus viridans and staphylococcus albus intradermally and reported a fall of the temperature beginning with the administration of the vaccine in doses of .05 cc., .10 cc., .15 cc., .2 cc. and .25 cc. every third day. However, the efficacy of this type of treatment is, I think,

highly questionable as most cases are self limited and recovery is spontaneous. O'Byrne[8] has reported a case of Loefler's syndrome in an infant age 5 months and Wright and Gold[9] have reported a series of twenty-six cases of creeping eruption (helminthiasis) with pulmonary lesions compatible with Loefler's syndrome. They found that the roentgenographic evidence of pulmonary infiltration promptly subsided when the cutaneous lesions



Fig. 3. Roentgenogram made May 16, 1949, showing marked resolution of pulmonary infiltrations occurring simultaneously in both lungs.

were treated properly. Lehman[10] has reported a case with erythema multiforme. Weingarten,[11] in 1943, reported eighty-one cases of tropical eosinophilia in Bombay, India, associated with paroxysms of asthma, loss of weight, appetite, weakness and eosinophilia up to 80 per cent. Whether or not these cases were associated with pulmonary infiltrations to classify as cases of Loefler's syndrome is not known.

REPORT OF CASE

L. W., an unmarried white woman aged 62, was first seen April 26, 1949, with the complaint of extreme lassitude and exhaustion. She stated that she had been unusually tired for the previous four months and that, for the last two weeks, prodigious effort was required to enable her to continue her work as a school teacher. From the history it was ascertained that she had complained of what she described as a head cold for the preceding three years. In December 1948 this condition had progressed so that she consulted an otolaryngologist for relief of complete nasal obstruction caused by copious, viscid mucus. She was skin tested for numerous allergens and was told that she was allergic to house dust. Desensitization with subcutaneous injections of house dust extract was attempted with no alleviation of the symptoms. In January 1949 nasal polyps were discovered and surgically removed without beneficial effect on the congestion and injections of house dust extract were resumed. The patient then developed severe vertigo and lost the sense of smell. For the following two months she continued with the injections of house dust extract and pyribenzamine and diets were tried with no results. She then began having nocturnal attacks of asthma and shortly thereafter discontinued further treatment. Olfaction gradually returned, but the vertigo, rhinitis and asthma still persisted at the time she was first seen.

Past Medical History.—This was noncontributory. Many years previously she had had a submucous resection for deviation of the nasal septum. Also a hysterectomy had been performed for a uterine fibroid and a strangulated femoral hernia sugically relieved. One month previous to examination, she had a chest roentgenogram (fig. 1) as part of a routine teacher's examination and had received a congratulatory letter from the radiologist on the negative x-ray findings.

Physical Examination.—The patient was a fairly well developed, well nourished female weighing 114 pounds, apparently not acutely ill. The head and neck were normal with the exception of the nose, in which the posterior nares were obstructed with a thick tenacious mucus. The temperature was 101 F. The blood pressure was 130 systolic and 75 diastolic. The heart rate was 105 per minute; the rhythm was regular and there were no murmurs. On auscultation of the chest no rales were heard and there were normal vesicular breath sounds throughout. Tactile fremitus and percussion of the chest elicited normal findings. There was no muscle rigidity or tenderness of the abdomen and the spleen and liver were not palpable. The extremities were normal and the patellar and pupillary reflexes active and equal bilaterally. Pelvic examination disclosed no evidence of pathologic condition. There



Fig. 4. Roentgenogram made July 1, 1949, showing complete resolution of the pulmonary infiltrations in both lungs.

were no palpable lymph glands. The respiratory rate was 20 per minute and there was no cough.

Roentgenograms of the chest (fig. 2) revealed well defined areas of pulmonary infiltration scattered throughout both lung fields involving, especially, the upper lobe of the left lung and obliterating the left costophrenic angle. Infiltrations in the lateral parenchyma of the right lung were less extensive. The cardiac shadow was within normal limits.

Laboratory Findings.—The white blood cell count was 34,700. The differential was 86 per cent eosinophils,

5 per cent neutrophils, 7 per cent lymphocytes, 2 per cent monocytes and no basophils. The sedimentation rate was 21 mm. in one hour. Kahn reaction was negative. The urine was negative for albumin and sugar, the specific gravity was 1.015, the reaction acid and the microscopic examination negative. Sputum specimens were examined repeatedly and found negative for tubercle bacilli, the scolices of echinococcus disease, the sulphur granule of actinomycosis and monilia albicans.

Course.—Treatment consisted of complete bed rest and acetylsalicylic acid for control of fever. Antihistaminics were tried, but discontinued because of adverse side reactions. On the basis of the total white blood cell count and elevation of the temperature and roentgenogram findings in the chest, 300,000 units of penicillin in oil was given before the results of the differential white blood count were known. Otherwise, this would have been withheld as the extremely high bacterial eosinophilia precluded an infectious process of bacterial origin. On the third day the temperature dropped to normal and has remained normal throughout the continued observation of the patient (table 1). Gradually, during

Table 1.

Date	Temperature	Date	Temperature
4-25-49	101. F.	5-31-49	98.0
4-26-49	101.5	6-14-49	98.4
4-27-49	98.6	7- 5-49	98.6
5- 2-49	98.6	8- 3-49	98.6
5-16-49	99.0	9- 2-49	98.2

a period of one month the pulmonary infiltrations diminished and disappeared (figs. 3 and 4). Slightly more than two months were required for the total white blood cell count to return to normal and, at the end of four months, the eosinophil count was still somewhat above the normal (table 2). The patient became

Table 2.

Date	Hb.	R. B. C.	W. B. C.	Neutrophils	Eosin.	Basophils	Lymph	Mono.
4-25-49	80%	4,200,000	35,700	5%	86%	0%	7%	2%
4-26-49	80	4,200,000	43,400	10	76	0	14	0
5- 2-49	76	4,150,000	41,600	12	75	1	12	0
5-16-49	78	4,175,000	36,300	5	83	0	12	0
5-31-49	80	4,300,000	19,700	20	60	1	19	0
6-14-49	79	4,350,000	12,650	40	40	0	20	0
7- 5-49	80	4,275,000	9,250	45	32	3	19	1
8- 3-49	80	4,350,000	8,400	56	10	3	29	2
9- 2-49	82	4,400,000	7,400	54	9	0	35	2

asymptomatic at the end of the first month and has returned to her work apparently in good health, despite some persisting allergic rhinitis.

CONCLUSION AND SUMMARY

A case is reported which fills the criteria of Loefler's syndrome; i.e., transient pulmonary infiltrations, high blood eosinophilia and mild clinical course followed by complete recovery. This case, as most of the others reported, has an allergic background. It is considered to be of interest primarily because of an eosinophil count considerably higher than any found reported in the literature and because it demonstrates that recovery without treatment is spontaneous and parallels that in which vaccines, intravenous iodides and such have been given.

1030 Argyle Bldg.

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A.M.A. URGES CRACKDOWN ON EXCESSIVE FEES

The Board of Trustees of the American Medical Association issued a statement today urging county and state medical society grievance committees to crack down on "the few members of the Association who charge excessive fees."

The statement, issued through the office of Dr. George F. Lull, secretary and general manager of the A.M.A., was signed by Dr. Louis H. Bauer, Hempstead, N. Y., chairman of the Board, and by the other eight Board members.

The statement said: The House of Delegates at its Washington, D. C., meeting in December 1949 adopted a resolution which proposes the establishment of grievance committees by county and state medical societies. When this resolution was presented to the House, attention was drawn to the success of the committees already established in some states.

The Board of Trustees believes that the medical profession will be pleased to learn that at least eighteen medical societies now have grievance committees. These committees hear grievances concerning alleged improper practices or injustices. Frequently fees are involved.

The Principles of Medical Ethics state in part: "A physician is expected to uphold the dignity and honor of his vocation." Unfortunately, there have been reports of physician's taking advantage of patients by charging exorbitant fees. Such reports, even though isolated, create an unfavorable impression of the entire medical profession. The establishment of grievance committees permits fair hearings for patients and physicians wherever the patient has been unable to adjust the matter satisfactorily with his physician. Sometimes a complaint is due to misunderstanding, perhaps because the physician neglected to explain to his patient the nature and cost of the services rendered. Such an explanation is especially indicated if unusual expenses are involved.

The Board of Trustees of the American Medical Association looks with disfavor on the few members of the Association who charge excessive fees. It urges state and county societies to discipline those members who, after a fair hearing and a decision that the fees charged have been excessive, refuse to reduce their fees to a level that is reasonable for the services rendered.

PRESIDENT'S PAGE

Three major legislative proposals relating to health are being considered by the Congress: S. B. 1453 providing aid to medical and other schools in the health field; S. B. 1411 providing examination and treatment of school children; House Resolution 6000 providing extension of the social security act and authorizing the beginning of total and permanent disability benefits.



The American Medical Association has opposed officially all of these acts because they contain sections which are objectionable, at least in part. Amendments have been offered on S. B. 1453 which, if accepted, will eliminate the objectionable features of the act.

S. B. 1411 would permit schools to provide treatment for all school children between the ages of 5 and 17 regardless of the financial status. This provision alone, if enacted into law, will be a major step toward socialized medicine.

House Resolution 6000 initiating compulsory contributory permanent and total disability would multiply the opportunity for malingering and represents another step toward nationalization of medical care.

These bills are potentially dangerous to the freedom and liberty of the American people. Physicians should be aware of the future outlook for the practice of medicine if these acts become law. Apparently the sponsors of compulsory health insurance are changing their tactics from an all inclusive type of act to a more gradual approach, hoping to enact the whole, piece by piece.

Wallis Smith.

Editorials

THE CENTENNIAL SESSION

"Four score and" twenty years ago, a group of physicians formed the Missouri State Medical Association. At the 1950 Annual Session, members of the Missouri State Medical Association will celebrate the culmination of one hundred years of organized medicine in Missouri. The session will be held at Hotel Jefferson, St. Louis, March 26, 27, 28, 29.

Some phases of the meeting will emphasize the historic occasion but most of the session will be devoted to the newest in medicine and only by contrast in one's mind will history be found. Speakers on the scientific program will present the newest in medical thought. Color television, thought by many to be a historic forward step in the teaching of medicine, will be used for the first time in a program of the Association and, also for the first time, shown in this section of the country. This enables a large group to have the same view of an operation or an examination that usually is possible only for a few. Surgical operations and medical procedures will be conducted at St. Louis City Hospital and viewed by members in the Gold Room of Hotel Jefferson.

An appropriately bound copy of the "History of the Missouri State Medical Association," written by Robert E. Schlueter, M.D., St. Louis, will be given members at the Annual Banquet in Honor of Past Presidents. The history will be published in THE JOURNAL but the anniversary volume will be distributed only at the banquet.

The program in full appears in this issue of THE JOURNAL. Also on page 226 is a hotel reservation form for the convenience of members in making their reservations.

AMERICAN COLLEGE OF SURGEONS ANNOUNCES APPROVED LIST OF HOSPITALS

The mid twentieth century Approved List of Hospitals, announced in January by the American College of Surgeons, includes 3,284 hospitals in the United States, Canada and a few other countries, compared with 3,150 at the end of 1948. The announcement came at the conclusion of the 32nd annual survey conducted by the College under its hospital standardization program. Only 89 hospitals qualified for approval after the first survey in 1918, according to Malcolm T. MacEachern, M.D., of Chicago, Director of the College, and he said that probably half a century ago not one hospital could have met the Standard for Hospitals as it is interpreted today, even with allowances for the many scientific and technical developments that have occurred in the meantime.

The survey list in 1949 included 3,998 hospitals of twenty-five or more beds, of which 82 per cent are approved. Of the 3,284 total approvals, 2,981 or 74.5 per cent are fully approved and 303 or 7.5 per cent are provisionally approved. Every hospital is reconsidered for approval each year. A point rating system, by means of which every kind of service is evaluated separately, is employed in the surveys.

Dr. MacEachern states that he believes the best way to appreciate the progress since 1900 in the battle for health is to compare the approved hospital in one's own community today with the hospital, if there was one, in the same place then. In the modern hospital, he says, "the advances in medical science and in care of the sick and injured are spectacularly manifested; it is easier to be convinced of progress by seeing the latest x-ray equipment, watching the technicians at work in the laboratory, and observing the preparations for an operation, than by reading about the conquest of yellow fever, typhoid fever and smallpox and the increase in average life expectancy from 49 years in 1900 to 68 years in 1950, important as these facts are."

Dr. MacEachern appealed to the public to recognize that costs of hospital care are high because high quality service is provided. He added "Hospitals in 1950 employ more than thirty different classifications of personnel, compared with only a few in 1900; payroll costs alone have more than doubled in the last few years. The knowledge which is power in terms of health restoration, is costly in dollars and cents. Competent personnel is the first requirement in a good hospital, and no economy is justifiable which interferes with its effectiveness in saving lives and overcoming disabilities."

Briefly summarized, the fundamental principles for approval of a hospital by the College follow: (1) modern physical plant, assuring the patient safety, comfort and efficient care, (2) clearly defined organization, duties, responsibilities, and relations, (3) carefully selected governing board with complete and supreme authority, (4) competent chief executive officer or administrator, well trained in all phases of hospital administration, with authority and responsibility to interpret and carry out the policies of the hospital as authorized by the governing board, (5) adequate and efficient personnel, properly organized and competently supervised, (6) organized medical staff of ethical, competent physicians and surgeons, (7) adequate diagnostic and therapeutic facilities under competent medical supervision, (8) accurate, complete medical records, readily accessible for research and follow-up, (9) regular group conferences of the administrative staff and of the medical staff, for reviewing activities and results so as to maintain a high plane of scientific efficiency and (10) a humanitarian spirit—the primary consideration being the best care of the patient.

Organization and Economics

NEWS

James T. Van Biber, M.D., Kansas City, was the guest speaker before the Parent-Teachers Association of the Redemptorist School, Kansas City, on January 11.

Claude J. Hunt, M.D., Kansas City, spoke before the Western Surgical Society at Santa Barbara, California, on "Management of Acute Colon Obstruction with Presentation of a Special Clamp for Decompression."

Brigadier General Wallace H. Graham, Washington, D. C., has been appointed Special Assistant on Medical Reserve Affairs to Major General Harry G. Armstrong, Air Surgeon General.

E. Lee Dorsett, M.D., St. Louis, and Richard Paddock, M.D., St. Louis, were guest speakers at the Midsession meeting of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons, held in Rochester, Minnesota, on February 24 and 25.

C. Stewart Gillmor, M.D., Kansas City, was a speaker at a meeting of the Young Matrons Club of Kansas City on January 16 and spoke on "Rheumatic Fever."

J. Harvey Jennett, M.D., Kansas City, spoke before the Shawnee Mission chapter of the Future Farmers of America on January 9 on "Rural Health Problems" and on January 10 he spoke on "Socialized Medicine" before the Kansas City Breakfast Club.

Albert Lemoine, Jr., M.D., Kansas City, gave the Jackson Memorial Lecture for the Colorado Ophthalmological Society at the University of Colorado, Denver, on January 21.

Herbert A. Hamel, M.D., Kansas City, spoke before the Franklin County (Kansas) Medical Society at Ottawa, Kansas, on January 25 on "Disabilities of the Foot."

The St. Louis City Hospital Alumni Association will hold a dinner meeting on the evening of March 29 at 6:30 p.m. at the Club Caprice, Sheraton Hotel, St. Louis, rather than at the Hotel Jefferson as was originally announced. Reservations may be made with S. Albert Hanser, M.D., 924 Arcade Building, St. Louis.

Burford G. Hamilton, M.D., Richmond, was appointed Director of the Missouri Division of Health on February 14 by Governor Forrest Smith. Dr. Hamilton replaces the late D. F. Adams, M.D., Jefferson City, who was acting Director.

Melvin A. Casberg, M.D., St. Louis, was elected to the board of directors of the National Society for Medical Research at a recent annual session of the society in Chicago.

The annual luncheon meeting of the alumni and former students of the University of Missouri Medical School will be held at Hotel Jefferson, on March 28, at 12:15 p. m. George Leonard Schultz, St. Louis, will speak on "Man Shall Not Live by Bread Alone." All alumni, former students and their guests are invited to the meeting.

MUSINGS OF THE FIELD SECRETARY

In Kansas City, Missouri, on February 3 and 4, some 500 lay and professional rural health leaders activated the Fifth National Rural Health Conference. The American Medical Association Committee on Rural Health and the National Farm Organizations have brought into being, in the form of this annual conference, a facility embodied with unlimited possibilties for cooperatve endeavors, by groups most concerned, to solve many rural health problems in a truly American way. No more fitting location for this conference could have been selected than Missouri's Kansas City.

Many of the points brought out and various statements made throughout the conference offer much food for thought. Some of these follow:

Some country communities that complain of not having a doctor do not deserve one. They lament loudly when "Old Doc" is finally laid to rest, or decides to retire to California. They forget that they left "Old Doc" to wither on the vine several years ago and have been using him for measles and the croup and taking their important medical work to the city.

Small town hospitals should be regarded as an emergency service like a fire department or police service. Deficits in hospital operation should be met like fire protection and police costs—as a community task. The cost of empty hospital beds should not be borne by charges against the sick only. Health is a personal responsibility but much of it is also a community task.

To get and to hold a young doctor, the community must be attractive to him.

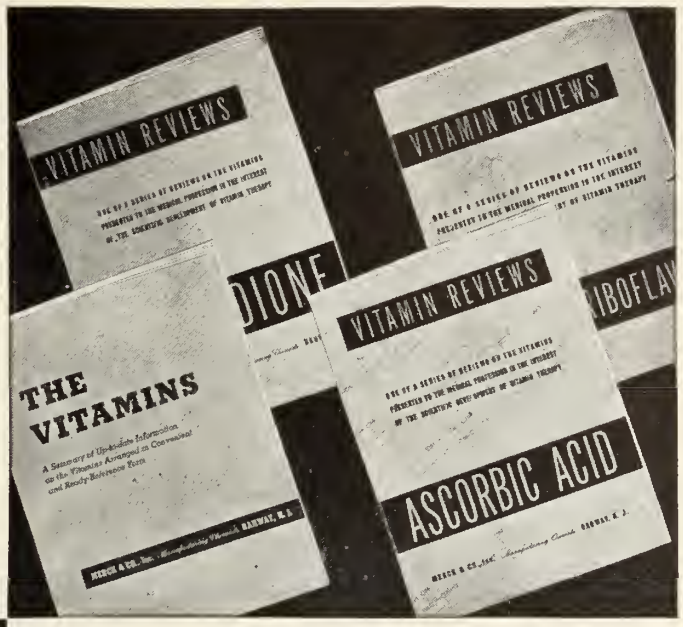
The farmer does not have a constant, steady income. That makes it harder to budget for future health expenses than for city folk.

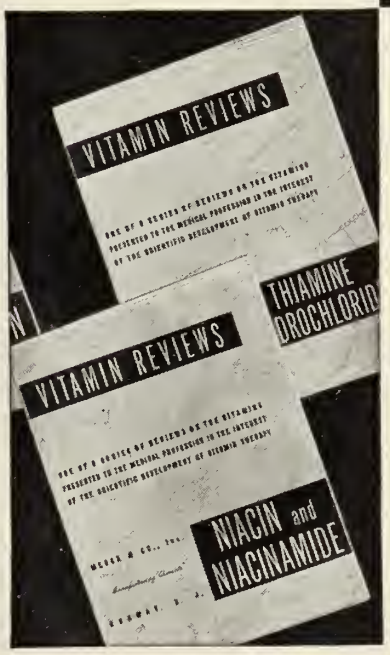
Everywhere the citizens of small towns and farms are waking up to the need for medical "workshops" that attract doctors to rural practice.

The establishment of County Health Councils has

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* *Proc. Soc. Exp. Biol. and Med.*, 1934, 32, 241-245; *N.Y. State Journ. Med.*, *Vol.* 35, 6-1-25, *No.* 11, 590-592; *Laryngoscope, Feb.* 1935, *Vol. XLV, No.* 2, 149-154; *Laryngoscope, Jan.* 1937, *Vol. XLVII, No.* 1, 58-60

stimulated community action to improve local health conditions in many states.

Voluntary prepayment plans for health services are successfully fulfilling the needs of both rural and urban areas in Minnesota, said Dr. Frank J. Elias, Duluth, President of the Minnesota State Medical Society.

No rural health program is sound unless it springs from the community itself. The problem really is one of educating and stimulating the people to do things for themselves.

The rural doctor problem was compared to that of the bald-headed man with a heavy beard—good production but poor distribution.

It was generally agreed that local community or county health councils be organized to promote health educational programs, sanitation and health surveys and the provision of proper local health facilities.

Much progress has been made in covering rural people with Blue Cross and Blue Shield but greater efforts are needed now and in the future in this respect.

DEATHS

Fogle, Robert Lee, M.D., St. Louis, a graduate of St. Louis University School of Medicine, 1903; member of the Pettis County Medical Society; aged 71; died October 26.

Woeger, Jacob G., M.D., Whiteside, a graduate of National University of Arts and Sciences, St. Louis, 1913; former president and member of the Lincoln County Medical Society; aged 61; died December 21.

Batts, Jett McCormick, M.D., St. Louis, a graduate of Washington University School of Medicine, 1923; member of the St. Louis Medical Society; aged 49; died December 30.

Crowson, E. L., M.D., Pickering, a graduate of the Northwestern Medical College, St. Joseph, 1890; member of the Nodaway-Atchison-Gentry-Worth County Medical Society; aged 85; died January 1.

Merriman, Clay S., M.D., Kansas City, a graduate of the University Medical College of Kansas City, 1887; honor member of the Jackson County Medical Society; aged 89; died January 5.

Gettys, Henry B., M.D., St. Louis, a graduate of St. Louis University School of Medicine, 1902; honor member of the St. Louis Medical Society; aged 75; died January 11.

Fair, Shields W., M.D., Kansas City, a graduate of the University Medical College of Kansas City, 1900; member of the Jackson County Medical Society; aged 77; died January 19.

Adams, Charles F., M.D., Jefferson City, a graduate of the Kansas City Medical College, 1902; Acting State Health Commissioner; member of the Cole County Medical Society; Fellow of the American Medical Association; aged 73; died January 21.

McNay, Albert L., M.D., Pacific, a graduate of Barnes Medical College, St. Louis, 1897; honor member of the Franklin County Medical Society; aged 76; died December 16.

Jacobson, Henry, M.D., St. Louis, a graduate of Missouri Medical College, St. Louis, 1886; honor member of the St. Louis Medical Society; aged 84; died December 20.

MISSOURI STATE MEDICAL ASSOCIATION

The One Hundredth Anniversary of the Association will be celebrated at the 92nd Annual Session to be held at Hotel Jefferson, St. Louis, March 26, 27, 28, 29, 1950.

SCIENTIFIC PROGRAM OF GENERAL MEETINGS

Monday, March 27, 1950, 8:30 a. m., Gold Room, Hotel Jefferson

8:30 a. m. Color Television: Surgical.
Resection of Stomach, Leo V. Mulligan, M.D., St. Louis.
Cesarean Section, Leo J. Hartnett, M.D., St. Louis.

Intermission to View Exhibits—10:30 to 11:00 a. m.

11:00 a. m. ACTH Diabetes in Man, J. W. Conn, M.D., Ann Arbor.

In selected normal individuals ACTH is capable of producing a state of metabolism which is indistinguishable from diabetes mellitus as it occurs spontaneously in man. Among so-called normal people, the total metabolic response to ACTH varies widely. This implies that if chronic stress (mental or physical) is a factor in the production of clinical disease, the abnormalities which result from stress may be extremely variable and may depend upon hereditary factors carried by the individual who undergoes such stress. The hereditary factor in diabetes may be related to this interesting phenomenon. Studies on possible mechanisms involved in ACTH diabetes in man will be discussed.

11:30 a. m. Bronchial Obstruction Due to Endobronchial Lesions, Paul H. Holinger, M.D., Chicago.

Bronchial obstruction plays an important role in diseases of the respiratory tract. Inflammatory bronchial stenosis, bronchial tuberculosis and the benign and malignant bronchial tumors produce obstruction which often is first evident because of the secondary infection which results from their

presence. These endobronchial lesions will be discussed and illustrated with photographs and bronchoscopic motion picture films.

1:30 p. m. Color Television:

Shock Therapy, Ernest H. Parsons, M.D., St. Louis.
Rehabilitation, Sedgwick Mead, M.D., St. Louis.
Neurologic Examination, Irwin Levy, M.D., St. Louis.
Neurologic Demonstration, Irwin Levy, M.D., St. Louis.
Radioactive Isotopes, Edward H. Reinhard, M.D., St. Louis.
Chest Diseases, Alfred Goldman, M.D., St. Louis.
Endocrinology, Daniel L. Sexton, M.D., St. Louis.
Arthritis, Paul O. Hagemann, M.D., St. Louis.

Intermission to View Exhibits—3:30 to 4:00 p. m.

4:00 p. m. House of Delegates, Crystal Room, Hotel Jefferson.

ANNUAL BANQUET IN HONOR OF PAST PRESIDENTS

Gold Room, Hotel Jefferson, 7:30 p. m.

Wallis Smith, M.D., Springfield, President, Presiding

Address of Welcome, Armand D. Fries, M.D., St. Louis, President, St. Louis Medical Society.
Introduction of Guests.
Presentation of Past Presidents.
Presentation of 50 Year Pin.
Introduction of Winner of Woman's Auxiliary Essay Contest.
Address of the President.
Address of the President-Elect.
Installation of the President-Elect.
Presentation of Past President's Key.
Where Do We Go Now?, Mr. Alex Dreier, Chicago.

Tuesday, March 28, 1950, 8:30 a. m., Gold Room, Hotel Jefferson

8:30 a. m. Color Television: Surgical.
Resection of Colon, Roland S. Kieffer, M.D., St. Louis.
Cholecystectomy, Charles Eckert, M.D., St. Louis.

Intermission to View Exhibits—10:30 to 11:00 a. m.

11:00 a. m. Prolonged Labor, Herbert E. Schmitz, M.D., Chicago.

Prolonged labor occurs in about 4 per cent of patients. Early recognition of the fact that labor will be prolonged permits supportive treatment which decreases the risk of the mother. When labor is slow because of poor uterine contraction, proper therapy increases the efficiency of the contractions and thus shortens the period of labor. Data will be shown to substantiate the fact that most cases of prolonged labor are due to primary uterine inertia. A careful consideration of all conditions influencing the progress of labor will be included in this study.

11:30 a. m. Recent Advances in Treatment of Cardiovascular Disease, Arlie Ray Barnes, M.D., Rochester.

1:30 p. m. Color Television: Medical:

Congenital Heart, E. Lee Shrader, M.D.; Don C. Weir, M.D.; Chester P. Lynxwiler, M.D., and Gerald Mudd, M.D., St. Louis.
Jaundice, William A. Knight, Jr., M.D., St. Louis.
Dermatitis, G. V. Stryker, M.D., St. Louis.
Poliomyelitis, Malcolm M. Cook, M.D., St. Louis.
Peripheral Vascular Disease, Paul S. Lowenstein, M.D., St. Louis.
Heart Clinic, Julius Jensen, M.D., St. Louis.
Marrow Biopsy, G. O. Broun, M.D., and Victor K. Hager, M.D., St. Louis
Cerebral Palsy, Robert Bruner, M.D., Kansas City.

Intermission to View Exhibits—3:30 to 4:00 p. m.

4:00 p. m. The Use and Abuse of Sulfonamides and Autibiotics in Pediatric Practice:

Thomas H. Hunter, M.D., St. Louis.
Gilbert B. Forbes, M.D., St. Louis.
Victor E. Hrdlicka, M.D., St. Louis.

A brief discussion of the fundamental concepts underlying the antibacterial properties of these agents and the range of activity possessed by each of them will occupy the first portion of the symposium. The use of sulfonamides and antibiotics in the treatment of hospitalized patients, together with mention of the more common toxic effects to be expected from their use, will be discussed. The final portion of the program will be devoted to a consideration of the proper use of these agents in office and home practice. Questions from the floor will be welcomed.

Wednesday, March 29, 1950, 8:30 a. m., Gold Room, Hotel Jefferson

8:30 a. m. Color Television: Surgical:
Radical Mastectomy, Cyril Costello, M.D., St. Louis.
Herniorrhaphy, Jerome I. Simon, M.D., St. Louis.

Intermission to View Exhibits—10:30 to 11:00 a. m.

11:00 a. m. The Value of the Anesthesiologist to the Various Fields of Medicine and Surgery, R. Charles Adams, M.D., Rochester.

The variety of services rendered by the anesthesiologist has increased progressively in recent years. This has been due to many things such as improved training facilities in anesthesia throughout the country and better understanding of the value to the patient of well integrated teamwork by the surgeon and the anesthesiologist. As the skill and versatility of the anesthesiologist has increased, it has become apparent that his service and experience can be utilized in a variety of ways in addition to his major function of administering anesthetics. There are few branches of medical practice in which the services of the anesthesiologist cannot be used to advantage at one time or another.

11:30 a. m. Surgical Lesions of the Stomach, Warren H. Cole, M.D., Chicago.

In general, the surgical treatment of peptic ulcer is still confined to the treatment of its complications. However, it must be emphasized that the treatment of gastric ulcer also may be surgical, largely because the percentage of diagnostic errors by radiologic examination is so great. The use of vagotomy in peptic ulcer is decreasing throughout the country, but the author still uses it as the treatment for marginal ulcer and with gastroenterostomy in elderly people who are poor operative risks, particularly when the gastric acidity is low. The mortality rate following gastrectomy for benign lesions of the stomach should be less than 3 per cent, but about twice that figure for malignant disease.

1:30 p. m. House of Delegates.

SCIENTIFIC EXHIBITS

Mezzanine, Hotel Jefferson

A New Concept of the Onset of Acute Appendicitis, Bray O. Hawk, M.D., and E. Lawrence Keyes, M.D., Department of Surgery, St. Louis University, School of Medicine, St. Louis.

Major Urologic Problems in Children, Hjalmar E. Carlson, M.D., Kansas City.

The Surgical Management of Large Goiters, Robert W. Bartlett, M.D., St. Louis.

Treatment of Superficial Cancer by the General Practitioner, Charles F. Sherwin, M.D., Department of Surgery, St. Louis University, School of Medicine, St. Louis.

Missouri Academy of General Practice.

External Diseases of the Eye, H. B. Stauffer, M.D., Jefferson City.

Illustrations of a Common Type of Cancer, E. Lawrence Keyes, M.D., and Hyman Goldman, M.D., Cancer Control Committee, St. Louis University, School of Medicine, St. Louis.

Common Control of Diabetes, Committee on Diabetes, Missouri State Medical Association.

Rapid Automatic Serialized X-ray Exposures in Cardiovascular and Angiography, Wendell G. Scott, M.D., and Wayne A. Simral, M.D., Department of Radiology, Washington University School of Medicine, St. Louis.

Trigeminal Neuralgia, Robert Dean Woolsey, M.D., St. Louis.

Deliveries in Rural Homes, Edmund Lissack, M.D., Concordia.

Megacolon: Management and Operative Treatment, Willard Bartlett, Jr., M.D., Department of Surgery, St. Louis University, School of Medicine, St. Louis.

TECHNICAL EXHIBITS

Hotel Jefferson—St. Louis

Smith, Kline & French Laboratories, Philadelphia. Booth 1.

'Nuclon'—'Nuclon' is the only antihistaminic head cold preparation containing the effective, and logical, antidepressant—'Dexedrine.' Its antihistaminic component, thenylpyramine fumarate, was chosen for its rapid, dependable action. The time tested analgesic, acetylsalicylic acid, completes 'Nuclon's' balanced formula. 'Nuclon' is so effective that, if administered early enough, it often will abort the cold the first day. Our specially trained professional representatives will be glad to answer questions concerning the possible uses of our products in your practice.

C. B. Fleet Co., Inc., Lynchburg, Va. Booth 2.

C. B. Fleet Co., Inc., cordially invites you to stop by Booth No. 2 for a visit with Mr. Paul Holzapfel, the representative who sees you in your office about once a year. Perhaps there is something about Phospho-Soda (Fleet), the pure, stable, aqueous concentrate of the two U.S.P. Sodium Phosphates, you would like to discuss with him.

Parke, Davis & Company, Detroit. Booth 3.

Members of the Parke, Davis & Company Medical Service Staff are on hand at our Commercial Exhibit for consultation and general discussion of the products classified in our Pharmaceutic, Antibiotic and Biologic lines. Important specialties, such as Chloromycetin, Penicillin S-R, Benadryl, Vitamins, Hypnotics, Antibiotics, Etamon, Oxycel, Thrombin Topical, Influenza Virus Vaccine and other biologics will be featured. You are cordially invited to visit our booth with the assurance your interest will indeed be much appreciated.

Camel Cigarettes, New York. Booth 4.

Camel Cigarettes will feature color slides of background data from their newest research. After weekly examinations of the throats of hundreds of men and women smoking Camel Cigarettes exclusively for thirty days, throat specialists reported "Not one single case of throat irritation due to smoking Camels."

V. Mueller & Company, Chicago. Booth 5.

You are cordially invited to visit V. Mueller and Company, Booth No. 5, where as usual you will find displayed many new and interesting Surgical Instruments. Missouri Representatives, Ed Marlotte and Roscoe Poston, are in attendance.

Merck & Co., Inc., Rahway, N. J. Booth 6.

Benodaine, the new diagnostic agent of value for detecting hypertension caused by the presence of an epinephrine-producing tumor (pheochromocytoma), is one of the products featured at the Merck exhibit. Neo-Antergan, an outstanding antihistaminic agent, advertised exclusively to the medical profession, also is featured. Because of its high antihistaminic potency combined with a high index of safety and a relatively low incidence of side effects, Neo-Antergan may be recommended for prompt, safe, symptomatic relief in hay fever and other allergic manifestations. "Benodaine" is the trademark of Merck & Co., Inc., for its brand of piperoxane.

Pevely Dairy Company, St. Louis. Booth 7.

G. D. Searle & Co., Chicago. Booth 8.

You are cordially invited to visit the Searle booth where our representatives will be happy to answer any questions regarding Searle Products of Research. Featured will be Dramamine for the prevention and active treatment of motion sickness; Alidase, for hypodermoclysis; Ruphyllin, for abnormal capillary fragility; Hydryllin, new and effective antihistaminic, as well as such times proven products as Searle Aminophyllin in all dosage forms, Metamucil, Ketochol, Floraquin, Kiophyllin, Diodoquin, Pavatrine and Pavatrine with Phenobarbital.

Mead Johnson & Company, Evansville, Ind. Booth 9.

Dextri-Maltose, Oleum Percomorphum, Pablum, Pabena, Olac and other Mead Products used in infant nutrition are on display at the Mead Johnson Exhibit at your Missouri State Medical Association Meeting. Protenum, a new high protein product, is being displayed; also. Lonalac, for low sodium diets. Our representatives at the Exhibit will be glad to discuss with you the new improvements of Amigen and Amisets.

C. W. Alban & Company, Inc., St. Louis. Booth 10.

C. W. Alban Company are displaying the newest editions in medical publications along with diagnostic instruments. Alban Company renders a complete service in medical books of all publishers, the best in surgical instruments of quality including the famous "Stille Sweden." The miscroscope department features new and used instruments; Microscope cleaning, repairing and overhauling in every detail is a service regularly available. Your visit to the booth will be appreciated.

Burroughs Wellcome & Co. Inc., Tuckahoe, N. Y. Booth 11.

Burroughs Wellcome & Co. are featuring a completely new type antihistaminic, 'Perazil' brand Chlorcyclizine Hydrochloride. 'Perazil' differs chemically in that it is a piperazine rather than a conventional ethylenediamine compound. Ask our representatives about the advantages of 'Perazil." We also feature 'Wellcome' brand Globin Insulin, the accepted intermediate acting insulin, and Digoxin, for safe, predictable digitalization.

William R. Warner & Co. Inc., New York. Booth 12.

C. E. Hovey, St. Louis. Booth 14.

The Medical Protective Company, Fort Wayne. Booth 15.

U. S. Vitamin Corporation, New York. Booth 16.

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Anyone who has had the slightest brush with the study of Pediatrics since the turn of this century has discovered what Dr. Zahorsky has done in that branch of Medicine. He will be interested in the events that led him into that particular field of endeavor—as well as all the small circumstances that shaped the course of his success.

FROM THE HILLS is the story of Dr. Zahorsky's life—personal memoirs of a happy doctor who devoted his time to the care of children—told in the same pleasing and engaging style which has characterized his medical writings.

Dr. Zahorsky has retired to his home in Steeleville, Missouri, where he wrote this autobiography and where he still fills his days in pleasant, but useful pursuits. The book carries an inspiring message to his colleagues in Pediatrics. The pattern of a sincere student of medicine who lived a full, rich and balanced life is here.

For those who seek a way to relax from the rigors of modern medicine—and who may be curious about the days before Pediatrics became the exacting science it is now through the efforts of Dr. Zahorsky, the book will be profitable and spiritually uplifting.

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LANTEEN MEDICAL LABORATORIES, INC., EVANSTON, ILL. BOOTH 17.

Lanteen Medical Laboratories, Inc., Evanston, Illinois, cordially invite you to visit their exhibit in Booth 17. Representatives are available to discuss a new diaphragm fitting technic used in conjunction with the new Lanteen Flat Spring Diaphragm. All other well known Lanteen Products also will be available for discussion.

W. B. SAUNDERS COMPANY, PHILADELPHIA. BOOTH 18.

We invite all doctors attending the Meeting of the Missouri State Medical Association to visit our exhibit where we are displaying a complete line of our books including Hyman's "Integrated Practice of Medicine," Bockus' "Postgraduate Gastro-enterology" and "Cytologic Diagnosis of Cancer," Wells' "Clinical Pathology," Wolff's "Electrocardiography," Conn's "1950 Current Therapy," 5th Edition of Mitchell and Nelson's "Pediatrics," Hauser's "Diseases of the Foot," Nesselrod's "Proctology," Custer's "Atlas of Blood and Bone Marrow," Sunderman and Boerner's "Normal Values," Friedberg's "Diseases of the Heart," Levine and Harvey's "Clinical Auscultation of the Heart," Boies' "Otolaryngology," and many other new books and new editions.

DAIRY COUNCIL OF ST. LOUIS, ST. LOUIS. BOOTH 22.

O'CONNELL BROS., INC., ST. LOUIS. BOOTH 23.

We cordially invite all physicians attending this Centennial Session to visit our booth and meet the O'Connell Brothers—Joe, Bill and Jack—all schooled for the purpose of serving the medical profession and sons of a Missouri physician. While we carry a complete line of ethical pharmaceuticals and injectibles we are only displaying a few of our prescription specialties and will distribute samples of Alutris, the antacid absorbent tablet and Ugenal, a sedative-hypnotic capsule. Other specialties include Colathal, an antispasmodic sedative especially useful in colic of infants, Ullagone, a gradual, prolonged vasodilator useful in essential hypertension.

BILHUBER-KNOLL CORP., ORANGE, N. J. BOOTH 25.

Visit the Bilhuber-Knoll Booth No. 25 for the latest information on the use of Octin in the treatment of vasodilating headaches and Quadronal for chronic bronchial asthma. Your discussions of the merits of these and other time-proven medicinal chemicals such as Lilaudid, Metrazol, Theocalcin, and Bromural will be welcomed.

HANLEY MEDICAL EQUIPMENT CO., ST. LOUIS. BOOTH 26.

Hanley Medical Equipment Company is exhibiting their 14 by 17 steel, full suspension, three drawer x-ray film cabinet, price $70.00. They are also exhibiting Standard X-ray Line, Birtcher Diathermy, Hanovia Ultraviolet Lamps, Eden direct writing Cardiograph, Ille Whirlpool. We wish to take this opportunity to announce that the Hanley Medical Equipment Company have been appointed distributor for x-ray equipment manufactured by the Standard X-Ray Company of Chicago. They will also service this line.

MAURICE NATENBERG, CHICAGO. BOOTH 27.

Maurice Natenberg, Publishers' Representative, is displaying the medical texts of such well known firms as: Appleton-Century-Crofts, Inc., The University of Chicago Press; Thomas Nelson & Sons; Oxford University Press; Grune & Straton, Inc., and the Macmillan Company. He will be glad to furnish information on coming new texts and will provide a convenient means of examining the books of these representative firms in one concentrated exhibit.

OTIS V. BENNETT, KIRKWOOD. BOOTH 28.

LEDERLE LABORATORIES, NEW YORK. BOOTH 29.

You are cordially invited to visit our exhibit in Booth 29 where you will find representatives who are prepared to give you the latest information on Lederle products.

SCHERING CORPORATION, BLOOMFIELD, N. J. BOOTH 30.

Buccal Tablets of Oreton, Progynon, Proluton and Cortate with the exclusively new base, Polyhydrol, are featured at the Schering exhibit. Polyhydrol makes possible complete absorption of hormones via the buccal route providing advantages of high effectiveness, convenience and economy. Trimeton and Chlor-Trimeton, two outstanding antihistamines, and Coricidin, Schering's new treatment for the common cold, containing Chlor-Trimeton, aspirin, phenacetin and caffeine, highlights the exhibit. Schering representatives will be present to welcome you, and will be happy to answer inquiries concerning Schering's new products as well as their other hormone, x-ray diagnostic, chemotherapeutic and pharmaceutical specialties.

LOV-É BRASSIERE COMPANY, HOLLYWOOD, CALIF. BOOTH 31.

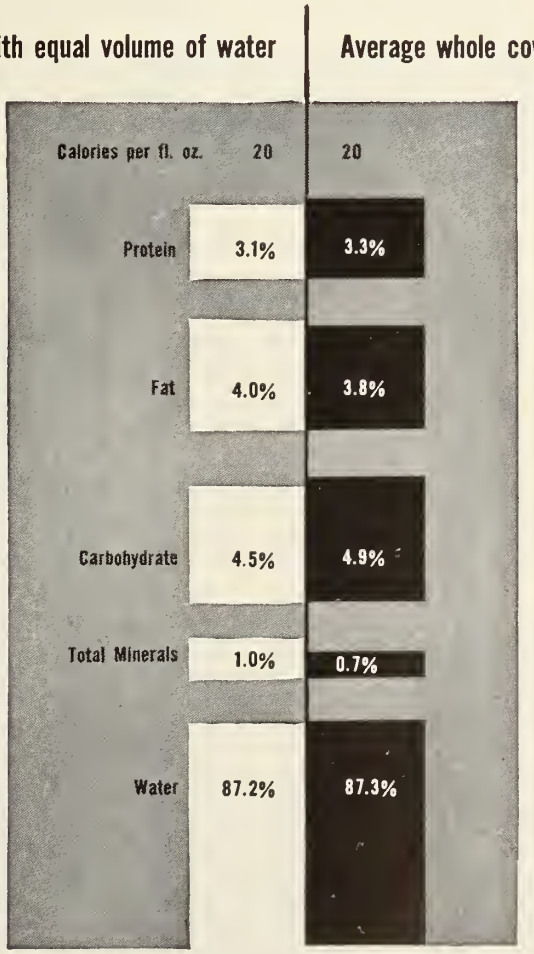
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CIBA PHARMACEUTICAL PRODUCTS, INC., SUMMIT, N. J. BOOTH 32.

We invite you to visit our exhibit for latest information on Priscoline (formerly known as Priscol), a valuable adjunct to the treatment of peripheral

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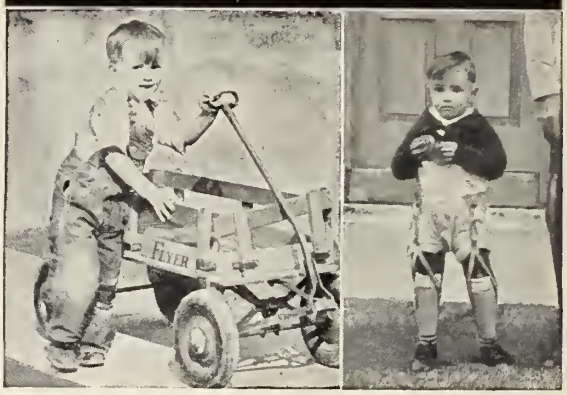
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vascular disease. Pyribenzamine, HCl, the antihistaminic drug for prevention and relief of anaphylaxis and many forms of allergy also is featured. Representatives in attendance will gladly answer any questions about these and other Ciba products.

VANPELT & BROWN, INC., RICHMOND, VA. BOOTH 33.

C. V. MOSBY COMPANY, ST. LOUIS. BOOTH 34.

You are cordially invited to visit the C. V. Mosby Company Booth No. 34, where you will find many new and interesting titles. Among the recent releases are Kantor-Kasich "Handbook of Digestive Diseases," Titus "Atlas of Obstetric Technic," Dodson "Urological Surgery," Ischlondsky "Brain and Behavior," Douglas and Faulkner "Obstetrical and Gynecological Pathology," Berman "Principles of Surgery" and many others.

EISELE & COMPANY, NASHVILLE. BOOTH 35.

Eisele & Company, Nashville, Tennessee, is displaying their line of green and white plungered hypodermic syringes with plain luer, lock and metal tip as well as their complete line of hypodermic needles, clinical thermometers and specialty glassware for the profession.

SANDOZ PHARMACEUTICALS, NEW YORK. BOOTH 37.

Physicians attending the Missouri State Medical Association convention are cordially invited to visit the Sandoz Pharmaceuticals display which will feature the following: Cafergone the first effective oral preparation for the treatment of migraine and related headaches, and Bellergal, a time-tested preparation for use in functional disorders. Other products displayed at this convention are Belladenal, Mesantoin, Dihydroergotamine—D.H.E. 45 and Ipesandrine. A new handbook listing our products will be available and representatives in attendance will gladly answer any questions about these and other Sandoz products.

PET MILK COMPANY, ST. LOUIS. BOOTH 38.

Specially trained representatives will be in attendance to discuss the use of Pet Milk in infant feeding, and to present many services that are time-savers for busy physicians. Miniature Pet Milk cans will be given to visitors at the exhibit.

ELI LILLY AND COMPANY, INDIANAPOLIS. BOOTH 39.

Your Lilly medical service representative cordially invites you to visit the Lilly exhibit located in Booth No. 39. Many new therapeutic developments are featured and literature on these products is available. Visiting physicians will be aided in every way possible.

HAMILTON-SCHMIDT SURGICAL COMPANY, ST. LOUIS. BOOTH 40.

The Hamilton-Schmidt Surgical Company of St. Louis occupies Booth No. 40. They are demonstrating the new Burdick direct writing electrocardiograph and the Ratheon physiotherapy machine; also a selection of surgical instruments which will be of general interest to the visiting Doctors.

COCA-COLA COMPANY, ATLANTA. BOOTHS 41 AND 42.

Ice-cold Cola-Cola served through the courtesy of the Coca-Cola Bottling Company of St. Louis and the Coca-Cola Company.

A. S. ALOE COMPANY, ST. LOUIS. BOOTH 43.

Your Aloe representative will be happy to welcome you to Booth No. 43. He has on display a representative cross-section of the surgical and laboratory equipment and supplies stocked by the "world's largest surgical supply house." Featured are many new items which you will want to see and have demonstrated.

THE UPJOHN COMPANY, KALAMAZOO, MICH. BOOTH 44.

The Upjohn exhibit presents the anticoagulant family: Heparin, Depo-Heparin and Dicumarol, with particular emphasis placed upon Depo-Heparin. When Heparin is prepared in a gelatin vehicle (Depo-Heparin) and administered intramuscularly, prolonged effects are obtained. A single injection of 1 cc. (200 mg.) of Depo-Heparin will prolong the blood coagulation time for about twenty-four hours.

CAMERON HEARTOMETER COMPANY, CHICAGO BOOTH 45.

See the improved Heartometer, a scientific precision instrument for accurately recording systolic and diastolic blood pressures, also furnishing a permanent graphic record of the pulse rate, disturbances of the rhythm, myocardial response, the action of the valves, as well as peripheral vascular circulation. The Heartometer clearly reveals heart disturbances in both early and advanced stages and is of great value in checking the progress of treatments.

A. H. ROBINS COMPANY, INC., RICHMOND, VA. BOOTH 46.

The A. H. Robins Company display is featuring the sedative-antispasmodic, Donnatal; the antirheumatic, Pabalate; Entozyme, digestant with the unique "peptomatic" action; and the newly introduced antitussive-expectorant, Robitussin. Robins' Medical Service Representatives will welcome the privilege of discussing with physicians attending the Assembly these and other products in the company's line of prescription specialties.

LEA & FEBIGER, PHILADELPHIA. BOOTH 47.

The Lea & Febiger Exhibit will be of special interest because of their display of such outstanding new books and new editions as Cozen "Office Orthopedics," McManus "Medical Diseases of the Kidney," Kessler "Rehabilitation," Pullen "Communicable Diseases," Burch "Primer of Venous Pressure," Davidoff and Epstein "The Abnormal Pneumoencephalogram," Gregg "The Heart and Coronary Circulation in Health and Disease," Singer "Differential Diagnosis of Chest Diseases," Palmer "Stomach Disease as Diagnosed by Gastroscopy," Pohle "Clinical Radiation Therapy," Bridges "Dietetics for the Clinician," Comroe "Arthritis," Tuft "Clinical Allergy," Goldberger "Unipolar Lead Electrocardiography," Kovács "Electrotherapy and Light Therapy," Wiggers "Physiology in Health and Disease," and many other new books and new editions.

Carnation Company, Los Angeles, Calif. Booth 49.

You are invited to visit Booth No. 49, where you will see an attractive display on Carnation Evaporated Milk—"The milk every doctor knows." Some valuable information on the use of this milk for infant feeding, child feeding and general diet, will be presented, and the method by which Carnation is generously fortified with pure crystalline Vitamin D—400 U.S.P. units per reconstituted quart—will be explained. Interesting literature will be available for distribution.

Dumas-Wilson & Co., St. Louis. Booth 50.

Dumas-Wilson & Co., Pharmaceuticals, are displaying a complete line of Primary Dried Yeast Products. Also, see our new products, Choline, Methionine, Inositol, Para-Aminosalicylic Acid (PAS), Alenic Capsules (Undecylenic Acid enteric coated capsules).

General Electric X-Ray Corporation, Milwaukee. Booths 51 and 52.

Sealy Mattress Company, Memphis. Booth 53.

Sealy Firm-O-Rest Orthopedic Mattress was especially engineered and designed to afford both proper support to the back as a preventive measure and as a therapeutic device for painful back conditions. It provides a flat bed with no sag; eliminates bed boards which are usually unsatisfactory and acts as a firm splint to the back, yet affords maximum comfort. The Sealy Firm-O-Rest Orthopedic Mattress is enthusiastically approved by thousands of physicians who have recommended it.

H. G. Fischer & Co., Franklin Park, Ill. Booth 54.

At Booth 54 inspect H. G. Fischer & Co.'s modern, efficient, low priced x-ray and physical therapy equipment. Let them point out many features of advantage in these representative units and other models not on display, also explain their extremely liberal terms of sale. Your visit welcome—no obligation.

Doho Chemical Corporation, New York. Booth 55.

The Doho Chemical Corporation and its subsidiary, Mallon Chemical Corporation, makers of Auralgan, O-tos-mo-san and Rectalgan, are proud to announce their new nasal decongestant, Rhinalgan—balanced formulation of two active chemical compounds that gives prolonged vasoconstriction—used as a spray, in our patented Dohony Spray-mist atomizer—pleasant tasting, with no systemic effect (pressor or respiratory), and can be used safely for infants and children. Our representatives are anxious to explain the merits of Rhinalgan and distribute samples of this innovation.

Ames Company, Inc., Elkhart, Ind. Booth 56.

The Selftester, a simple home-testing unit for urine-sugar detection, is featured at the Ames booth. The Selftester was developed in cooperation with the American Diabetes Association to help find and bring the "million unknown diabetics" under physicians' care. It has been accepted for advertising in publications of the American Medical Association. Clinitest, acetest and hematest, simplified tests for the detection of urine-sugar, acetone bodies and occult blood, will be demonstrated.

Rexair Division, Martin-Parry Corporation, Toledo. Booth 57.

Rexair is the modern cleaning appliance that uses water instead of a bag. With Rexair, you clean the air you breathe as well as the rugs and furnishings. The dirt and dust are trapped in water, then flushed down the drain. There is no dirty bag to empty. With this home and hospital appliance, you can purify the air, humidify, deodorize and vaporize, scrub the floors and shampoo the rugs. Rexair comes equipped with attachments to do every phase of cleaning, and is the ideal appliance for the home, hospital, office and laboratory.

Winthrop-Stearns Inc., New York. Booth 58.

Winthrop-Stearns Inc., New York, extends a cordial invitation to visit its Booth No. 58, where representatives are on hand to discuss the latest therapeutic contributions made by this firm. Featured is Sulfamylon, new sulfonamide for topical use with wide antibacterial range (including anaerobes, gas gangrene); not inhibited by pus. Also available with Streptomycin; Milibus, new, virtually nontoxic amebacide; Neo-Synephrine, time-tested, well tolerated, prolonged decongestive; Isuprel, efficient and convenient bronchodilator, tablets for sublingual use, solution for inhalation.

Philip Morris & Co. Inc., New York. Booth 59.

Philip Morris & Company will demonstrate the method by which it was found that Philip Morris Cigarettes, in which diethylene glycol is used as the hygroscopic agent, are less irritating than other cigarettes. Their representative will be happy to discuss researches on this subject, and problems on the physiologic effects of smoking.

Dick X-Ray Company, St. Louis. Booth 60.

The Dick X-Ray Company is exhibiting equipment selected from its exclusive lines, namely, Westinghouse professional x-ray equipment, Liebel-Flarsheim physical therapy equipment, and Cambridge electrocardiographs.

E. R. Squibb & Sons, New York. Booth 61.

M & R Dietetic Laboratories, Inc., Columbus. Booth 62.

Similac Division, M & R Dietetic Laboratories, Inc., Booth No. 62, are displaying Similac, a food for infants. Our representatives will appreciate the opportunity to discuss the merit and suggested application for both the normal and special feeding cases.

Sharp & Dohme, Inc., Philadelphia. Booth 64.

Visitors attending the Missouri State Medical Association meeting are cordially invited to visit the Sharp & Dohme exhibit in Booth No. 64. Stable, portable "Lyovac" Normal Human Plasma irradiated to destroy viral contaminants that might cause homologous serum hepatitis merits your attention. Unusual Specialties including "Cremo"-sulfonamides, pleasantly flavored, palatable sus-



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Aureomycin is now rapidly becoming recognized as a drug of choice in the treatment of mixed bacterial genitourinary infections, particularly those in which *Escherichia coli* and *Aerobacter aerogenes* play a part. Intractability of a genitourinary infection is an especial indication for aureomycin.

Aureomycin has also been found highly effective for the control of the following infections: African tick-bite fever, acute amebiasis, bacterial and virus-like infections of the eye, bacteroides septicemia, boutonneuse fever, acute brucellosis, Gram-positive infections (including those caused by streptococci, staphylococci, and pneumococci), Gram-negative infections (including those caused by the *coli-aerogenes* group), granuloma inguinale, *H. influenzae* infections, lymphogranuloma venereum, peritonitis, primary atypical pneumonia, psittacosis (parrot fever), Q fever, rickettsialpox, Rocky Mountain spotted fever, subacute bacterial endocarditis resistant to penicillin, tularemia and typhus.

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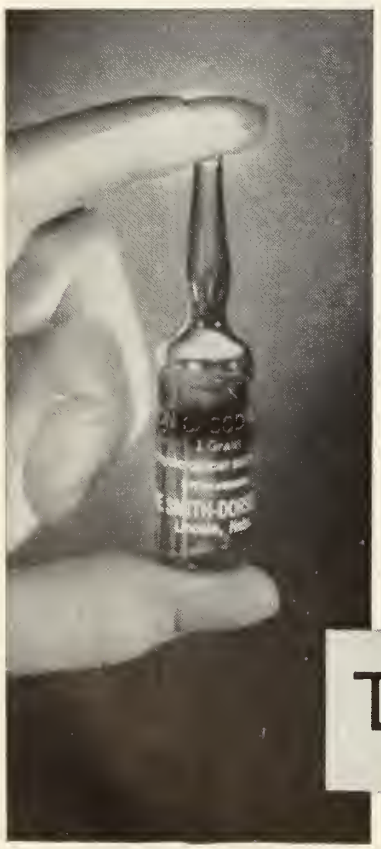
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a research program with adequate staff
and facilities; and for final confirmation, a
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pensions of the most effective systemic and enteric sulfonamides, and "Delmor," a delicious nutrient powder, also will be of major interest.

FARNSWORTH LABORATORIES, CHICAGO. BOOTH 65.

Farnsworth Laboratories, specializing in Parenteral Medications and other modern developments in injectibles, invite you to visit their exhibit.

WM. P. POYTHRESS & CO., INC., RICHMOND, VA. BOOTH 66.

The Wm. P. Poythress & Company, Inc., cordially invites you to visit Booth No. 66, which features (in addition to the well established and familiar specialty preparations, Solfoton, Uro-Phosphate, Panalgesic, T C S, and Merpectogel) a new, highly potent synthetic antispasmodic, Trocinate, a product of Poythress research. Trocinate is available in 100 mg. tablets and also in combination with phenobarbital. Literature, samples and information on all products will be yours for the asking. Mr. Robert Fryer will be in attendance.

MISSOURI SOCIETY OF MEDICAL TECHNOLOGISTS

All technologists in Missouri are invited to the third Annual Session of the Missouri Society of Medical Technologists which will be held March 26, 27, 28 and 29, at Hotel Jefferson, St. Louis.

SCIENTIFIC PROGRAM

Monday, March 27, 1950. Room 1, Hotel Jefferson

9:15 a. m. Invocation, Reverend Edward T. Foote, S. J., Regent, St. Louis University School of Medicine.

9:20 a. m. Liver Function Tests: Evaluation and Newer Concepts, Miss Marjorie Smith, M.T. (ASCP), Kansas City General Hospital, Kansas City, Missouri.

The Cephalin Cholesterol Flocculation, the Thymol Turbidity, and the Bromsulphalein tests will be evaluated and the newer concepts regarding these tests will be outlined.

9:40 a. m. Plasma Protein Determinations: An Analysis of Several Methods, Miss Betty Wesley, Snodgrass Laboratories, St. Louis City Hospital, St. Louis.

Although there has been little controversy among biochemists that the Kjeldahl method of nitrogen determination is the method of choice for the quantitative determination of proteins, this method often has been displaced by other methods which require less time and less rigorous chemical technic. Satisfactory agreement has been found between the macro-Kjeldahl technic and Weichselbaum's method for the determination of protein which is based upon a modified biuret reaction. There are a few instances such as traumatic shock, postoperative or burn cases, often accompanied by rapid and critical shifts of hemoconcentration, in which the estimation of plasma protein and hemoglobin by the copper sulfate method for the determination of the specific gravity of whole blood and plasma is of great value. However, because of poor correlation with Kjeldahl determinations in many instances, the copper sulfate specific gravity method should never be used in the laboratory for quantitative protein determinations.

10:00 a. m. Medical Technologists: Their Training, Sister M. Alcuin, M.T. (ASCP) College of St. Scholastica, Duluth, Minnesota.

This paper will treat of the present types of training of medical technologists, chief of which are the training that meets the minimum set down for certification by the Board of Registry of Medical Technologists of the American Society of Medical Technologists; and courses in which, concomitant with qualifying for certification, the candidate meets the requirements for a baccalaureate degree in some reputable college. The examination of curricula and the results attained by pursuance of such curricula will also be discussed. A brief summary about courses leading to advanced degrees will be included.

10:20 a. m. Errors in Total Cell Counts and Hemoglobin Determinations, Virginia Minnick, B.Sc., M.Sc., Research Associate in Internal Medicine, Washington University School of Medicine.

Intermission to View Exhibits—10:30 to 11:00 a. m.

11:00 a. m. Problem Clinic and Demonstrations. East Room, Hotel Jefferson.

Frog Pregnancy Test.
Plasma Proteins.
Cardiolipins.
Red Blood Count, White Blood Counts and Hemoglobin.
Liver Function Tests.

Tuberculosis Staining of Slides.
Diastase.

2:00 p. m. The Importance of Laboratory Studies Related to the Rh Factor, Edith Potter, M.D., Chicago, Department of Obstetrics and Gynecology, the University of Chicago.

The laboratory investigation of the possibility of immunization to the Rh factor may contribute important information regarding the prognosis for the outcome of current and future pregnancies. It may indicate when special preparations for treatment of an infant should be prepared before delivery. It will help establish the diagnosis of erythroblastosis in the infant. It is a necessary safeguard in order that no immunized patient be given incompatible blood.

4:00 p. m. Problem Clinic and Demonstrations. East Room, Hotel Jefferson.

Frog Pregnancy Test.
Plasma Proteins.
Urine Analysis.
Red Blood Count, White Blood Count and Hemoglobin.
Liver Function Tests.
Tissue Staining.
Rh Typing.

Tuesday, March 28, 1950. Room 1, Hotel Jefferson

9:20 a. m. Protein-Free Filtrates, Miss Betty Eickholt, B.S., M.T. (ASCP) Veterans' Hospital, Jefferson Barracks, Missouri.

Protein-free filtrates are the starting point for most biochemistry determinations as done routinely in a hospital or office laboratory. The selection, technic and difficulties encountered in preparing filtrates will be discussed.

9:40 a. m. Basal Metabolic Rate: Technical Problems Encountered, Miss Ellabeth Houghton, Barnes Hospital, St. Louis.

A presentation of some constructive "do's and don'ts" which are useful to technicians in the performance of basal metabolism tests will be given. Isolated cases and factors which will elevate or lower the BMR will be discussed.

10:00 a. m. The Iodometric Determination of Serum Diastase, Miss Hildegarde Kramer, Clinical Pathological Laboratories, St. Louis.

The iodometric determination of serum diastase by the Somogyi method will be described. Factors which influence diastatic activity will be reviewed, since control of these factors is necessary in order to obtain accurate and comparable results. Standardization of solutions and sources of error will be discussed. The range of normal values and values in certain diseases will be given.

10:20 a. m. The Frog Pregnancy Test, Miss Adela Martinez Guarjardo, Student in Medical Technology, St. Louis University, St. Louis, Missouri.

This discussion will include the following topics:

I. Use of the Rana pipiens frog
   A. Technic
      1) of injecting urine or blood into the frog.
      2) of collecting urine from the frog to determine the reaction.
   B. Care of frogs for clinical use.
   C. Significance of the frog test.
II. Mention of Xenopus laevis frog and toads.

Intermission to View Exhibits—10:30 to 11:00 a. m.

11:00 a. m. Problem Clinic and Demonstrations. East Room, Hotel Jefferson.

Frog Pregnancy Test.
Plasma Proteins.
Diastase.
Protein-Free Filtrates.
Liver Function Tests.
Cardiolipins.
Tissue Staining.
Red Blood Count, White Blood Counts and Hemoglobin.

2:00 p. m. Slide Demonstration of Cells: Normal Peripheral Blood, Pathological Peripheral Blood, and Bone Marrow Studies, Sister M. Leo Rita, SSM., B.S., M.T. (ASCP), St. Mary's Hospital, St. Louis

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From where I sit
by Joe Marsh

Gabby Enjoys Going to the Dentist

One of my molars was giving me a bad time Tuesday, so I slipped over to Doc Jones, hoping to catch him free. When I arrived, Gabby Jackson was sitting there reading a magazine. I said hello to Gabby and he nodded.

Doc comes out and says I'm next. "Wait a minute," I says. (My tooth seemed to have stopped aching.) "How about Gabby—doesn't he have an appointment?" Doc smiles and says, "Gabby? Why, he's got the finest teeth in the county. He just comes up here and reads magazines when he's in town!"

As Doc went to work he told me he's glad to have Gabby read magazines . . . they might not all be fresh off the newsstand, but if Gabby—or anyone—wants to while away some time, who is he *to stand in his way?*

From where I sit, this "live and let live" spirit helps make America what it is. If I prefer a friendly glass of beer with my supper and you happen to prefer milk—who's to say one's right and the other wrong?

Joe Marsh

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Colored photomicrographs of blood and bone marrow smears taken at a magnification of 1125 times using Kodachrome, Ektachrome and Ansco films will be demonstrated. The value of these preparations in the comparison of various cell types will be discussed. The proposed new standard terminology as well as terminology previously employed will be used in designating the blood and bone marrow cells.

2:20 p. m. Routine Urinalysis, Miss Frances Murry, B.S., M.T. (ASCP) Firmin Desloge Hospital, St. Louis University, St. Louis, Missouri.

This is an attempt at a critical evaluation of the various methods employed in routine analysis plus a short discussion on the importance of reporting complete and accurate findings and consequent responsibilities.

2:40 p. m. Routine Laboratory Diagnosis of Tuberculosis, Miss Alice Timpe, M.T. (ASCP), Kansas City General Hospital, Kansas City.

The routine laboratory procedure used at Kansas City General Hospital for treatment of sputum specimens will be discussed. This discussion will include the value and limitations of direct smears using choice particles as a means of concentration and method of concentration of cultures of sputum specimens.

3:00 p. m. Some Musts in Histologic Staining Technic, Mrs. Chrystal Hamontre Clinesmith, Kansas City General Hospital, Kansas City.

A demonstration of some common errors in the routine Hematoxylin-Eosin staining procedure, and the devices developed at Kansas City General Hospital for avoiding such errors will be discussed.

Intermission to View Exhibits—3:30 to 4:00 p. m.

4:00 p. m. Problem Clinic and Demonstrations. East Room. Hotel Jefferson.
Frog Pregnancy Test.
Rh Typing.
Tuberculosis Staining of Slides.
Urinalysis.
Liver Function Tests.
Plasma Proteins.
Tissue Staining.
Red Blood Count, White Blood Counts and Hemoglobin.

MEETING OF PATHOLOGISTS

The South Central Region of the College of American Pathologists, the Missouri Society of Pathologists and the St. Louis Pathological Society will hold a joint meeting at St. Louis University School of Medicine on March 25 and 26. The program follows:

Saturday, March 25

1:00 to 5:00 p. m. Seminar on Tumors of the Skin, Elson Helwig, M.D., Washington, D. C.

7:00 p. m. Dinner, Colonial Room, Melbourne Hotel. The Medical Examiner System, Robert A. Moore, M.D., St. Louis.

Sunday, March 26, 9:00 a. m.

A Pathologic Appraisal of Carcinoma of the Breast Based on Study of 315 Radical Mastectomies, L. V. Ackerman, M.D., St. Louis.

The Pathogenesis of Megaloblastic Anemia, Carl V. Moore, M.D., St. Louis.

The Diagnosis of Erythroblastosis, Edith L. Potter, M.D., Chicago.

Transfusion Hazards, F. W. Hartman, M.D., Detroit.

Transfusional Iron Storage Disease, J. P. Wyatt, M.D., St. Louis.

Sunday, March 26, 2:00 p. m.

Hospital Laboratory Service for the Proper Care of the Patient, F. W. Hartman, M.D., Detroit.

The Measurement of Total Base in Serum, F. W. Sunderman, M.D., Cleveland.

The Metabolism of Injected I 131-Labeled Foreign Protein in Rabbits and Mice, G. J. Dammin, M.D., and F. J. Dixon, M.D., St. Louis.

Successful Transplantation of Guinea Pig Thyroid and Parathyroid and of Tumor Tissue After Freezing in Liquid, Herman T. Blumenthal, St. Louis.

The Huggins-Miller-Jansen Test in Malignant Disease, John Frerichs, M.D., St. Louis.

REHABILITATION INSTITUTE, KANSAS CITY

The Rehabilitation Institute, 3101 Gillham Plaza, Kansas City, has just completed two years of work with the disabled of that area. The Institute is a curative workshop designed to provide facilities for physical restoration, prevocational try-outs, and some placement of the disabled to enable them to become, to the fullest possible extent, independent and useful members of the community. The Institute aims, through the use of physical, occupational and allied therapies to hasten the patient's physical, emotional, social and economic adjustment.

The Institute is an example of what an aroused community can do to meet unfilled needs. Some three years ago, interested groups working through the Health Council of the Council of Social Agencies of Kansas



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Tom A. Funkhouser
Box 7342, North Kansas City 16, Mo.

City, recommended that a curative center be established to meet the needs of the handicapped. To form the nucleus of the new organization, the Council of Social Agencies called on the following existing organizations, all of them already, in one way or another, interested in the handicapped: Goodwill Industries, Jackson County Chapter of the National Foundation for Infantile Paralysis, Jackson County Society for Crippled Children and Adults, Jackson County Medical Society, United Jewish Social Services, Kansas City Junior League, the Visiting Nurse Association and the Women's Chamber of Commerce. The board members of these eight organizations became the corporate members of the new agency. This group elected its own board and officers. Since that time, there have been added to the sponsoring groups the boards of the Presidents' and Past Presidents' General Assembly, and the Pi Beta Phi Alumnae Club of Kansas City.

A medical advisory committee was appointed by the Jackson County Medical Society with Rex L. Diveley, M.D., as chairman. This committee helped set medical policies of the Institute and serves as consultants to the staff. Patients, however, are referred by their own physicians, who supervise the treatment they receive in the Institute.

The staff of the Institute consists of the executive director, two physical therapists, an occupational therapist and a supervisor of the sheltered work unit. Assistance on nonprofessional duties is given by a corps of volunteers furnished by the Junior League, Pi Phi group, the Presidents' and Past Presidents' General Assembly, and the Adverettes.

The Institute provides physical therapy, occupational therapy and sheltered employment. Physical therapy is given to improve function, coordinate movements and build up physical tolerance. It also is used to teach more efficient use of appliances, such as crutches, canes, braces, artificial arms and legs, and teach self-transportation as to step up curbs, climb stairs and use public conveyances. Treatment is provided through heat, massage and active and passive exercise. Equipment includes infra-red and ultraviolet ray lamps, diathermy, paraffin bath, whirlpool, Emerson hot pack machine, various forms of steps, ramps, parallel bars and heavy resistance exercise equipment.

Occupational therapy is used to improve function, coordinate movements and build up physical tolerance, but the treatment is given through the use of actual work activities. Treatment is provided by the use of looms, large and small, woodworking equipment, leather work, plastics, needlework, power machines, printing and other crafts, and many self-help activities such as tying ties, shoestrings, managing buttons, using telephones.

Sheltered employment helps the disabled to earn through the media of subcontracts from industry, and also helps build work tolerance and provides training for outside employment. The work includes folding greeting cards, folding and packaging handkerchiefs, addressing and stuffing envelopes for mailing campaigns, handwork on advertising folders, sorting bolts, nuts and screws, leather work on purses and belts, furniture repair, packaging a variety of goods and repair of feed sacks.

Patients are accepted for treatment only upon referral by a doctor of medicine. The patient's own physician prescribes and supervises both physical and occupational therapy treatments, receives periodic progress reports from the Institute, and dismisses the patient when maximum improvement has been made. All questions of medical policy are referred to the medical advisory committee selected by the Jackson County Medical Society.

The Institute accepts for treatment those patients for whom the need of physical and occupational therapy or sheltered work is indicated. Common types of disabilities accepted for treatment or training are bone, joint and neuromuscular conditions such as cerebral palsy, poliomyelitis, arthritis, and traumatic lesions such as fractures, dislocations, contusions, nerve injuries and amputations. A comprehensive program of adjustment and development of work tolerance is provided for those with arrested tuberculosis, epilepsy, psychoneurosis and other types of disabilities.

The Institute is a nonprofit organization financed by gifts from various organizations and private individuals. The State Vocational Rehabilitation Division, the Veterans' Administration and insurance companies contribute through fees paid for their patients. Patients accepted are of three types: (1) those without financial resources, whose service is paid through gifts for that purpose, (2) those who come from state or federal agencies and insurance companies, whose fees are carried by the agencies sending them in for treatment and (3) private patients who carry their own cost.

This year has seen twice as many persons served as compared to last year, and most of them have been improved to the point of being able to return to former employment, new jobs, or to training for jobs. Approximately 24,351 hours of service to the disabled have been provided in this year by a professional staff of five, part of this in treatments and part in days employment and training in the workshop. Each patient receives a great deal of individual attention and a variety of service which may include one or all of the following services: physical therapy, occupational therapy, work experience, prevocational training, speech correction, review of training in academic subjects, counseling, both vocational and personal, and job placement. More and more doctors are making use of the Institute as an outpatient facility for their patients.

It is the plan of the Institute to add many more services as the funds for staff and equipment become available, but the basic services are being provided and amazing growth and progress have been made over the two years of its existence so that it is felt that it has been definitely proven that the need for such a center was present, and that while all needs of the disabled have not been met, an excellent beginning has been made.

FINANCIAL STATEMENT FOR 1949

ROBBERT A. LENNERTSON
CERTIFIED PUBLIC ACCOUNTANT
MEMBER—AMERICAN INSTITUTE OF ACCOUNTANTS
SAINT LOUIS, MISSOURI

February 18, 1950

Missouri State Medical Association,
634 North Grand Boulevard,
St. Louis, Missouri.
Gentlemen:

An examination has been made of the accounts of the Missouri State Medical Association for the year 1949 and a report is presented thereon together with the following statements:

Exhibit A. Balance Sheet.
Exhibit B. Statement of Income and Expenses.
Exhibit C. Statement of Committee and Meeting Expenses.
Exhibit D. Dues Receivable and Membership by Counties.

In connection with the statements, it should be noted that members' dues are taken into income on the cash basis whereas all other accounts are maintained on the accrual basis.

Scope of Examination

The Balance Sheet as at December 31, 1949, and the Statement of Income and Expenses for the year 1949 were reviewed.

Examinations or tests were made of accounting records, in the manner and to the extent deemed appropriate under the circumstances, without making a detailed audit of the transactions.

Cash in banks as shown by the books was reconciled with the regular monthly bank statements and confirmation letters direct from the depositories. The petty cash fund of $25.00 and United States Savings Bonds Series G with a par value of $55,000.00 were verified by physical inspection. Recorded cash receipts for the year were traced in total into the bank accounts as deposits and disbursements for the period were substantiated by an inspection of paid checks, purchase invoices and other data. Selective tests were made of the income and expense accounts for the period. It was noted that space was contributed by THE JOURNAL for publication of advertisements by the United States Treasury in connection with Savings Bonds.

Statement of Income and Expenses

The financial result of the Association's activities for the year 1949 was an excess of expenses over income in the amount of $2,111.43 as set forth in Exhibit B.

Balance Sheet

Exhibit A presents the asset and liability accounts of the Association at December 31, 1949, and comments follow on Balance Sheet accounts not previously discussed.

Accounts Receivable from JOURNAL advertisers were reviewed and are summarized as to date of charge:

Month of Charge	Amount
December 1949	$1,035.31
November 1949	8.70
October 1949	8.40
September 1949	8.40
Prior—Year 1948	68.40
Total	$1,129.21

Account Receivable of $125.00 represents an unpaid amount for exhibit space at the 1949 annual session.

Unpaid Members' Dues in the sum of $165.00, offset by a reserve account in a like amount, represent 1949 dues of delinquent members carried at the request of local societies upon their assurance of payment. Other individuals with delinquent dues at December 31, 1949, were dropped from membership in accordance with the by-laws. A summary of Dues Receivable and Membership by Counties, as shown by the Association's records, is presented in Exhibit D.

Furniture and Fixtures continue to be stated in the fixed amount of $1,000.00, purchases during the year having been charged to expense in lieu of depreciation.

Records and data on file were carefully reviewed for liabilities at December 31, 1949, and it is believed that all current liabilities are included in the Balance Sheet. There is a contingent liability in the sum of $900.00 on three malpractice suits reported pending against members. The Association's by-laws require it to furnish assistance in an amount not to exceed $300.00 in each case.

Advance payments in the sum of $2,457.50 were made by exhibitors to December 31, 1949, and these payments will be taken into income when earned in 1950.

General

The following insurance was in force at the close of the year:

Insurance On	Type of Coverage	Amount
Furniture and Fixtures	Fire	$ 2,000 00
Treasurer	Fidelity Bond	20,000.00
Executive Secretary	Fidelity Bond	1,000.00
Employee	Life Endowment Policy with Disability Benefits (Cash Value $4,457.52)	12,000.00
Automobiles of Executive and Field Secretaries	Non-Ownership—Bodily Injury	25/50,000.00
	Property Damage	5,000.00

Under the provisions of the non-ownership policy the individuals are required to carry the following insurance:

Automobile—Executive Secretary	Bodily Injury	15/30,000.00
	Property Damage	5,000.00
Automobile—Field Secretary	Bodily Injury	15/30,000.00
	Property Damage	5,000.00

The method of accounting employed during the year 1949 was in conformity with generally accepted accounting principles which were applied on a basis consistent with that of the preceding period.

Yours very truly,
R. A. LENNERTSON,
Certified Public Accountant.

EXHIBIT A

Missouri State Medical Association
Balance Sheet, December 31, 1949

ASSETS

Cash:		
Mercantile-Commerce Bank and Trust Company (Treasurer's Account)	$19,259.30	
Mercantile-Commerce National Bank (Secretary's Account)	453.77	
Petty Cash Fund	25.00	$19,738.07
U. S. Savings Bonds—Series G—Cost and Par Value		55,000.00
Accounts Receivable:		
Advertisers	$ 1,129.21	
Exhibitor	125.00	
American Medical Association	38.57	1,292.78
Dues Receivable—Exhibit D		165.00
Furniture and Fixtures		1,000.00
Advances for Traveling Expenses		192.03
		$77,387.88

LIABILITIES

Accounts Payable:		
Supplies and Expenses	$ 814.90	
Accrued Salary	387.50	
Federal Withholding, Social Security and City Earnings Taxes	854.35	$ 2,056.75
Deferred Credit to Income:		
Advance Payments by Exhibitors		2,457.50
Contingent Liability to Members on Three Malpractice Suits—$900.00		
Reserve for Uncollected Dues		165.00
Reserve for Future Activities:		
Balance January 1, 1949	$74,820.06	
Excess of Expenses Over Income for the Year 1949 per Exhibit B	(2,111.43)	72,708.63
		$77,387.88

EXHIBIT B

Missouri State Medical Association
Statement of Income and Expenses for the Year 1949

Particulars	General Activities	JOURNAL Publication	Together
INCOME			
Dues received (includes $1.00 per member annually for THE JOURNAL)	$46,117.00	$ 3,397.00	$49,514.00
Rentals—Annual session exhibit space	6,125.00		6,125.00
Rent from sub-tenant (office space)	840.00		840.00
Subscriptions to THE JOURNAL —Non-members		168.80	168.80
Advertising space—THE JOURNAL		19,244.66	19,244.66
Interest on U. S. Savings Bonds	1,375.00		1,375.00
Total Income	$54,457.00	$22,810.46	$77,267.46
EXPENSES			
Salary—Executive Secretary.	$ 4,566.67	$ 2,283.33	$ 6,850.00
Salary—Treasurer	1.00		1.00
Office Salaries	13,621.61	6,810.81	20,432.42
Employee's Retirement Insurance Premium	918.72		918.72
Office Heat and Light	2,469.85		2,469.85
Postage	1,375.59	392.82	1,768.41
Stationery, Printing and Office Supplies	1,212.16		1,212.16
Directories and Clipping Service	872.93		872.93
THE JOURNAL—Paper, Printing, Mailing, Etc.		15,190.49	15,190.49
Cash Discounts to Advertisers		38.23	38.23
Commissions on JOURNAL Advertising		1,426.37	1,426 37
Discounts to Exhibitors	12.50		12.50
Telephone and Telegraph	1,518.37		1,518.37
Insurance—General	85.18		85.18
Fees and General Expenses	1,357.05		1,357.05
Taxes — Social Security and Personal Property	181.36		181.36
Traveling Expense — Executive Secretary	886.13		886.13
Traveling Expense—Field Secretary	1,691.55		1,691.55
Traveling Expense — General	401.96		401.96
Committees and Meeting Expenses (Exhibit C)	21,453.31	169.03	21,622.34
Equipment Purchases and Repairs in lieu of Depreciation	441 87		441.87
Total Expenses	$53,067.81	$26,311.08	$79,378.89
Net Income or (Loss) for the Period	$ 1,389.19	$(3,500.62)	$(2,111.43)

EXHIBIT C

Missouri State Medical Association
Statement of Committee and Meeting Expenses for the Year 1949

Annual Session	$ 7,672.06

Council Meetings and Councilors' Expenses	$2,928.12	
Delegates to A. M. A.	1,258.49	
Women's Auxiliary	652.82	
Handbook	313.33	5,152.76
Committees:		
Conservation of Eyesight	$ 60.35	
Rural Medicine	487.55	
Health and Public Instruction	921.64	
Post-graduate Instruction	372.60	
Public Policy and Relations	5,960.64	
Scientific Work	197.67	
Tuberculosis	110.91	
Industrial Health	339.48	
Medical Economics	61.29	
Infant Care	52.50	
Control of Venereal Disease	17.50	
Mental Health	46.36	
Sub-total	$8,628.49	
Publication Committee	169.03	8,797.52
Total		$21,622.34

Exhibit D

Missouri State Medical Association
Dues Receivable and Membership by Counties
December 31, 1949

Counties	MEMBERSHIP Total	Active	Junior	Honor	1949 Dues	Prepaid Dues
Andrew	6	6				
Audrain	13	11		2		$ 165.00
Audrain						15.00N
Barton-Dade	12	7	2	3		90.00
Bates	9	9				
Benton	3	1		2		15.00
Boone	49	45	1	3	$ 15.00	135 00
Buchanan	104	82	1	21		
Butler	27	24	1	2		
Caldwell-Livingston	15	15				
Callaway	15	9	1	5		142.50
Camden	2	2				30.00
Cape Girardeau	38	32		6		
Carroll	7	6	1			
Carter-Shannon	4	4				
Cass	14	12		2		90.00
Cass						15.00N
Chariton-Macon-Monroe-Randolph	43	30		13		285.00
Chariton-Macon-Monroe-Randolph						15:00N
Clay	37	34	1	2		
Clinton	9	7	2			
Cole	35	34		1		
Cooper	14	14				
Dallas-Hickory-Polk	10	9		1		135.00
DeKalk	2	1		1		
Dunklin	27	22	1	4	7.50	
Franklin	28	25	2	1		
Greene	121	103	5	13		
Grundy-Daviess	14	12		2		90.00
Harrison	3	3				
Henry	14	13		1		
Holt	5	3		2		
Howard	5	5				
Jackson	656	523	36	97	45.00	
Jasper	68	53	2	13		
Jefferson	16	16				
Johnson	13	11	1	1		
Laclede	13	13				180.00
Laclede						15.00N
Lafayette	21	19		2		15.00N
Lewis-Clark-Scotland	6	6				
Lincoln	7	5		2		15.00
Linn	10	7	1	2	7.50	
Marion-Ralls	29	27		2		
Mercer	8	6	1	1		90.00
Miller	3	3				45.00
Mississippi	8	6	1	1		
Moniteau	6	5		1		75.00
Moniteau						15.00N
Montgomery	5	5				
Morgan	3	2	1			
New Madrid	11	11				15.00
Newton	12	12				
Nodaway-Atchison-Gentry-Worth	24	24				195.00
Nodaway-Atchison-Gentry-Worth						15.00N
North Central (Adair, Schuyler, Knox, Sullivan, Putnam)	23	20		3	15.00	
Ozark Medical Society (Barry, Christian, Lawrence, Stone, Taney)	37	33		4		
Pemiscot	14	13		1		
Perry	6	6				90.00
Perry						15.00N
Pettis	35	29		6		
Phelps-Crawford-Dent-Pulaski	29	26		3		
Pike	11	7	1	3		
Platte	7	7				
Ray	6	4		2		45 00
Ray						15.00N
St. Charles	22	21		1		210.00
St. Francois-Iron-Madison-Washington-Reynolds	34	30		4		30.00N
Ste. Genevieve	4	4				60.00
St. Louis County	282	243	23	16		1,457.50
St. Louis County						75.00N
St. Louis Medical Society	1,295	1,054	167	74	60.00	30.00
St. Louis Medical Society						262 50N
Saline	23	22	1			7.50
Scott	15	15			15.00	
Shelby	4	3	1			45.00
South Central (Howell, Oregon, Texas, Wright, Douglas)	21	19		2		15.00
Stoddard	6	6				
Vernon-Cedar	17	15		2		
Webster	2	2				30.00
Totals	3,497	2,913	254	330	$165.00*	$4,285.00

*Delinquent 1949 dues of members carried at the request of local societies upon their assurance of payment.

(N) New members—payments received from applicants in 1949 for memberships effective from January 1, 1950.

Budget for 1949

Salaries	$26,800.00
Journal Expense	18,000.00
Postage and Express	600.00
Printing and Stationery	1,800.00
Travel, Executive Secretary	900.00
Travel, Field Secretary	1,500.00
Telephone and Telegraph	1,200.00
Office Rent and Light	2,800.00
Meetings and Committee Expense	12,000.00
Defense	500.00
Postgraduate	700.00
Woman's Auxiliary	500.00
Public Relations	4,500.00
Insurance Annuity	950.00
Miscellaneous General Expense	1,500.00
Furniture and Fixtures	250.00
Social Security Tax	350.00
Total	$74,850.00

MISSOURI TRUDEAU SOCIETY

The Missouri Trudeau Society will hold its annual scientific and business session on March 26, in the St. Louis Room, Hotel Statler, St. Louis. With the exception of participation in the business session, meetings are open to all physicians. There is no registration fee. The program follows:

9:30 a. m. Resection for pulmonary Tuberculosis, Lewis Bosher, M.D., St. Louis.

10:15 a. m. Neomycin: Its Relation in the Treatment of Tuberculosis, John H. Seabury, M.D., New Orleans.

11:30 a. m. The Treatment of Injuries to the Chest, Joseph Lucido, M.D., St. Louis.

12:15 p. m. Luncheon and Annual Business Meeting.

2:00 p. m. The Status of Cardiac Surgery Today, Sidney Smith, M.D., St. Louis.

2:45 p. m. The Practical Aspects of Recent Research Studies in Histoplasmosis, Michael Furcolow, M.D., Kansas City.

COMMITTEE ON MATERNAL WELFARE

The Committee on Maternal Welfare is planning a statistical study of all maternal deaths occurring in the State of Missouri. The Committee will receive from the Division of Health a monthly report of these deaths with the name of the attending physician. A letter will be written to the physician asking for full information regarding the maternal death. All information will be held in strict confidence and the data obtained will be used only for statistical study.

The Committee hopes that it will receive the full cooperation of the physicians of the state.

E. Lee Dorsett, M.D., Chairman.

MISSOURI CHAPTER, AMERICAN COLLEGE OF CHEST PHYSICIANS

Sunday, March 26, Hotel Statler

Luncheon and Business Meeting.

Importance of Bronchial Cytology in the Diagnosis of Bronchopulmonary Diseases, F. K. Hansel, M.D., St. Louis.

Monday, March 27, Hotel Jefferson, 10:00 a. m.

Bronchial Obstruction Due to Endobronchial Lesions, Paul Holinger, M.D., Chicago.

Streptomycin in the Treatment of Pulmonary Tuberculosis, Alfred Goldman, M.D., St. Louis.

SOCIETY PROCEEDINGS

SECOND COUNCILOR DISTRICT

W. F. FRANCKA, HANNIBAL, COUNCILOR

Chariton-Macon-Monroe-Randolph County Medical Society

The Chariton-Macon-Monroe-Randolph County Medical Society met at the Woodland Hospital, Moberly, on January 12.

A. J. Kotkis, M.D., St. Louis, spoke on "Physiotherapy."

The next meeting will be held at the Woodland Hospital, Moberly, on February 9 with Stanley S. Nemec, M.D., St. Louis, speaking on "X-ray Consideration of Chest Conditions."

Henry K. Baker, M.D., Secretary.

SIXTH COUNCILOR DISTRICT

R. W. KENNEDY, MARSHALL, COUNCILOR

Thirty-five physicians attended a dinner meeting of the Sixth Councilor District at Marshall on January 31. The Saline County Medical Society served as host for a social hour preceding the dinner.

William J. Shaw, M.D., Fayette, president of the Missouri Academy of General Practice, discussed briefly the functions and purposes of the Academy.

Claude J. Hunt, M.D., Kansas City, spoke on "The Management of Acute Bowel Obstruction" with excellent use of visual aid materials.

R. W. Kennedy, M.D., Councilor.

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Hotel reservations for the Annual Session should be made direct to the hotel of choice. Early reservations will insure obtaining the reservation desired. The application following may be used in place of a letter to the hotel, if reservation is desired at the Jefferson Hotel.

	Room For Two		
Single	Double Bed	Twin Beds	Suites—2 Rooms
$4.50	$6.00	$7.50	$15.00
5.00	6.50	8.00	22.00
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6.50	8.00		

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Names and addresses of all persons for whom you are requesting reservations and who will occupy the rooms asked for:

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Individual Requesting Reservations:

Name .....

Address .....

City and State .....



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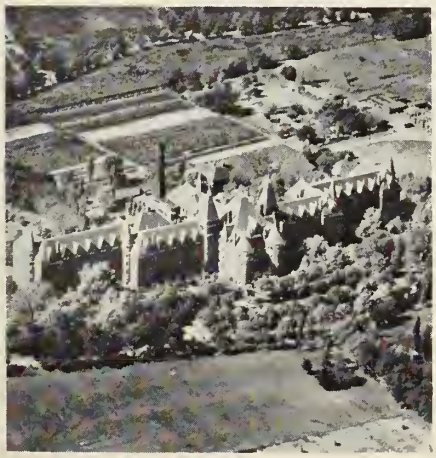
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Basic Principles in General Surgery, Two Weeks, starting April 3.
Personal Course in General Surgery, Two Weeks, starting April 17.
Surgery of Colon and Rectum, One Week, starting April 10, May 15.
Esophageal Surgery, One Week, starting June 5.
Breast and Thyroid Surgery, One Week, starting June 26.
Thoracic Surgery, One Week, starting June 12.
Gallbladder Surgery, Ten Hours, starting April 24.
Fractures and Traumatic Surgery, Two Weeks, starting March 20, June 12.
GYNECOLOGY—Intensive Course, Two Weeks, starting March 20, April 17.
Vaginal Approach to Pelvic Surgery, One Week, starting April 3.
OBSTETRICS—Intensive Course, Two Weeks, starting April 3, June 5.
PEDIATRICS—Intensive Course, Two Weeks, starting April 3.
Personal Course in Cerebral Palsy, Two Weeks, starting July 31.
Personal Course in Diagnosis and Treatment of Congenital Malformations of the Heart, Two Weeks, starting June 5.
MEDICINE—Intensive General Course, Two Weeks, starting April 24.
Electrocardiography and Heart Disease, Two Weeks, starting July 17.
Hematology, One Week, starting May 8.
Gastro-Enterology, Two Weeks, starting May 15.
Liver and Biliary Diseases, One Week, starting June 5.
Gastroscopy, Two Weeks, starting May 15, June 12.
DERMATOLOGY—Formal Course, Two Weeks, starting May 8. Informal Clinical Course every two weeks.
UROLOGY—Intensive Course, Two Weeks, starting April 17.
Cystoscopy, Ten Day Practical Course, every two weeks.

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FOR SALE: Electric office sterilizer; late model Baumanometer; Aloe coagulator and cautery; steel, glass top and shelves dressing table; over 125 assorted surgical instruments; McDonald chair and other items all $150.00. Contact E. L. Parker, M.D., 2834 Troost Ave., Kansas City, Mo.

FOR SALE: E.N.T. treatment unit, chair, cuspidor, lamp, stool, etc. Also instrument cabinet, x-ray view box and air compressor. All in A-1 condition. Reasonable price. Contact D. P. Ferris, M.D., 62 Grantwood Village, Affton 23, Mo.

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Entered as second-class matter, February 18, 1925, at the Post Office at Fulton, Missouri, under the Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Section 1003, Act of October 3, 1917, authorized July 30, 1918. Printed by The Ovid Bell Press, Inc., Fulton, Missouri.

Address all communications to The Journal of the Missouri State Medical Association, 623 Missouri Theater Building, 634 North Grand Avenue, St. Louis 3. Telephone: Newstead 0404-0405.

Subscription: $3.00 per year; 40 cents per copy.

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of the
MISSOURI
STATE MEDICAL ASSOCIATION

Vol. 47 APRIL, 1950 No. 4

History of the MISSOURI STATE MEDICAL ASSOCIATION

by
Robert E. Schlueter, M.D.,
St. Louis

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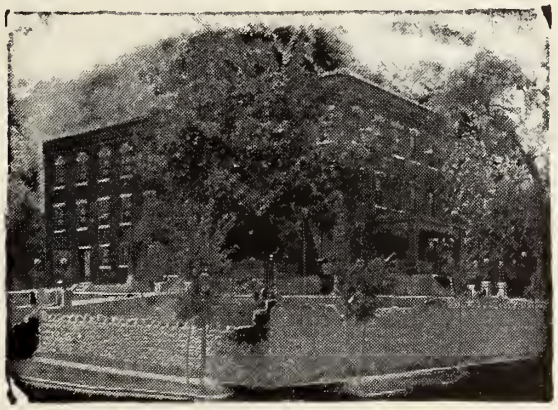
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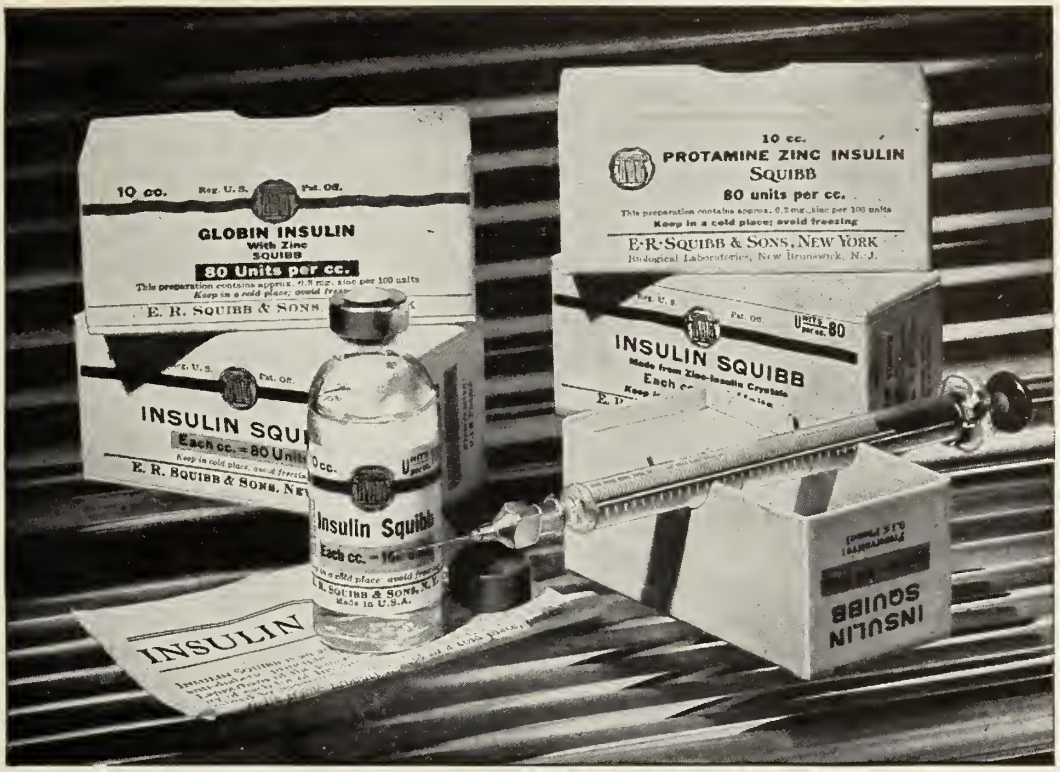
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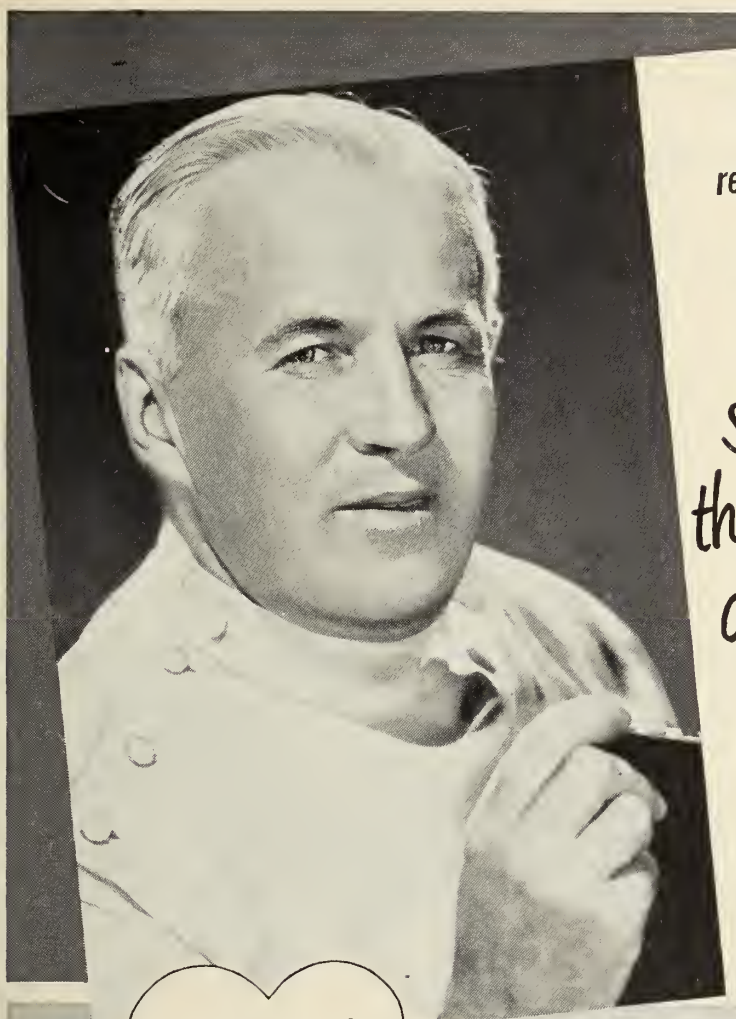
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HISTORY OF THE MISSOURI STATE MEDICAL ASSOCIATION

ROBERT E. SCHLUETER, M.D., St. Louis

PREFACE

As the centenary of the Association was looming before the eyes of its officers and members, it was deemed most appropriate that some description of the Association's past work should be a part of the centennial celebration. A comprehensive record, however, would be quite cumbersome, so this more practical summary of evidently apparent essentials was thought to serve the purpose of a commemoration better. Of course this modest effort is not immune to that sort of criticism to which all abstracts are exposed.

There are a great many personal names, of which some may have been wrongly or carelessly recorded or incorrectly copied. Every possible means has been employed to make the narrative free of error. If we have not succeeded, it is hoped that it will be liberally viewed and handled accordingly by our critics.

A great amount of material has been omitted intentionally to bring this contribution down to a convenient size for the entire membership. It is hoped that not too great an amount of that which might be adjudged as really essential fact has been inadvertently unrecognized and omitted.

It was not an altogether easy task to find all the necessary recorded material, as none of the early records before the establishment of THE JOURNAL *are preserved at the headquarters of the Association. Most of the transactions of the Missouri State Medical Association, up until 1904, were found in the Library of the St. Louis Medical Society, where the Librarian, Miss Audrey L. Kargus, assisted materially. The transactions for two of the missing years (1896 and 1897) were provided by Miss Marion A. Murphy, from the Library of the Washington University School of Medicine. The Army Medical Library, Washington, D. C., provided the needed records of the Association for 1872, 1873, 1874 and 1875. That left only the years 1870 and 1871 to be found. After failing to locate them elsewhere, the notices of those meetings in the "Missouri Republican," in the files of the Missouri Historical Society, provided the material to complete this narrative in a fashion.*

The whole effort would have been definitely impossible had it not been for the assistance and services of Miss Helen Penn.

While attending the annual convention of the American Medical Association in Cincinnati, Ohio, May 7 to 10, 1850, the several delegates from Missouri learned that there existed "associations embracing the medical profession" in many states. Deciding then to create such a state-wide organization, one of these delegates, William M. McPheeters,* on May 18, 1850, presented to the Medical Society of Missouri at St. Louis (now the St. Louis Medical Society) the following resolution:

WHEREAS, In the opinion of this Society, the time has arrived when it is both expedient and desirable to unite the medical profession of the State of Missouri for purposes of mutual improvement and protection, be it therefore,

Resolved, That a committee of —— be appointed, whose duty it shall be to devise a plan and submit it to this society, by which the entire profession of the state can be brought together by means of parent county societies; and in furtherance of this desirable end an invitation be extended to members of the regular profession, throughout the entire state, to meet in general convention in this City on or about the first of October next.

This resolution was adopted unanimously by the Society and on motion the President, R. P. Simmons, was requested to appoint a "committee of five to act upon said resolution." The committee consisted of W. M. McPheeters, J. B. Johnson, S. Gratz Moses, George Engelmann and George Penn.

Reporting on June 15, 1850, this committee approved the resolution and recommended that a general convention be held in St. Louis about November 1. It was accepted after some discussion.

An invitation having been addressed to the members of the regular medical profession of the State of Missouri to meet in St. Louis on Monday, November 4, 1850, a large delegation met at 12:00 o'clock noon of that day in the First Presbyterian Church.

George Penn, of St. Louis County, was selected as temporary President; F. W. G. Thomas, of Boonville, and H. C. Wright, of Warren County, as Vice-Presidents; J. R. Washington, of St. Louis and A. M. Davison, of Jefferson City, as Secretaries.

On taking the chair, Dr. Penn made a short but appropriate address, and A. W. Hall, chairman of the Committee on Arrangements, presented the list of delegates as registered. There were ninety-eight from St. Louis and thirty-eight from other localities.

A Constitution and By-Laws were adopted.

The officers for the ensuing year were elected as follows: President, F. W. G. Thomas, of Boonville; Vice Presidents, J. Barnes, of St. Louis, of First Congressional District; B. F. Coulter, of Pike County, of Second Congressional District; H. T. Hughes, of Lewis County, of Third Congressional District; J. Wood, of Clay County, of Fourth Congressional District; J. F. Atkinson, of Lafayette County, of Fifth Congressional District; Secretaries, H. C. Wright, of Warren County, and J. S. B. Alleyne, of St. Louis; Treasurer, G. Johnson, of St. Louis.



F. W. G. Thomas

George Penn, having declined election to office for "reasons which he stated," was thanked by an appropriate resolution "for the able and impartial manner in which he discharged his duty as presiding officer of the Convention."

The members of the various committees were elected, but it must be noted that professors of the medical schools were excused from serving on the Committee on Medical Education. Boonville, Cooper County, was selected for the next annual meeting. The annual dues were fixed at $2.00.

It is remarkable how much progressive business was transacted at this first meeting. Among the many resolutions and motions adopted were those pertaining to the passage of a good medical practice act, establishing a uniform system of "registration of births, marriages and deaths," recommending the control of the dispensing of impure drugs and "a competent inspector of drugs and medicines for the Port of St. Louis," recommending a liberal prelim-

* All persons are physicians unless otherwise designated.

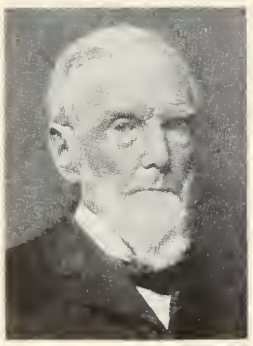
inary education of those who enter the study of medicine, and the education of the blind and deaf.

1851

The first annual meeting was called to order by the President, F. W. G. Thomas, at Boonville, at 11:00 a. m. His "sound and judicious" address was heard by many "citizens as well as members of the Association."

The following officers were elected: President, W. M. McPheeters, of St. Louis; Vice Presidents, John S. Moore, of St. Louis; E. H. Gregory, of Warren County; Heart, of Cooper County, and Killebrue, of Pettis County; Secretaries, J. S. B. Alleyne, of St. Louis, and Charles J. Chandler, of Cooper County; Treasurer, George Johnson, of St. Louis.

The reports of the committees were "listened to with pleasure" and several of them provoked considerable discussion. Discussion was quite animated on the report of the committee on practical medicine by Moses L. Linton and on the one on medical education by John Lawton. Some of the committees failed to report.



William M. McPheeters

St. Louis was chosen for the next annual meeting place, and a committee of three, with E. I. Forshey, of St. Louis, as chairman, was selected to "address the profession throughout the State on the importance of forming county medical societies." The President was authorized to request individuals to prepare and read papers before the Association. The meeting closed with a sumptuous dinner in the Mansion House as guests of the Cooper County Medical Society.

1852

On April 19, 1852, the Association met in the City of St. Louis at 12:00 o'clock noon. The President, W. M. McPheeters, delivered the annual address on "Medical Reform and the Feasibility of Bringing It About by the Combined Action of the National and State Associations, Without an Appeal to Legislative Enactments."



John B. Johnson

John B. Johnson was elected President; Charles A. Pope, of St. Louis, J. C. Welborn, of Pike County, Charles J. Chandler of Cooper County, and Chinn, of Lafayette County, were elected Vice Presidents; J. S. B. Alleyne and L. S. Banks were made Secretaries, and E. S. Lemoine, Treasurer.

Adam Hammer read a prepared paper on "Medical Education," which "gave rise to an animated discussion which lasted until the hour of adjournment." The members of the various committees were nominated and elected. After a suitable motion was made and carried, eighteen separate subjects were assigned to as many members for the preparation of papers and presentation at the next annual meeting, which was again to be held in St. Louis. The delegates expressed the hope that there would then be an increased "attendance from the interior of the state."

A number of amendments to the Constitution were proposed, and four delegates to the American Medical Association were appointed.

1853

This meeting was called to order on April 19, 1853, at 11:00 a. m., in the Fourth Street Methodist Church in St. Louis, by the President, John B. Johnson, who delivered an eloquent address.



J. P. Vaughan

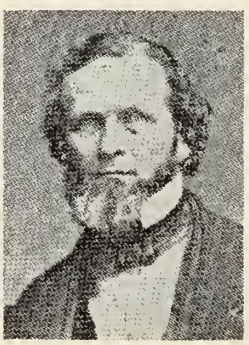
The following officers were elected: J. P. Vaughan, of Glasgow, President; G. M. B. Maughs, C. Quarles Chandler and Silas Reed, Vice Presidents; J. J. Dupuy and W. A. Currey, Secretaries, and E. S. Lemoine, Treasurer.

Considerable time was spent in discussing the amendments to the Constitution which were proposed at the previous meeting and some minor changes were adopted.

The members went in a body to the Missouri Institution for the Education of Blind, which proved most interesting, and they greatly enjoyed an entertainment in O'Fallon Hall given by the St. Louis medical profession. It was decided to invite the American Medical Association to hold its 1854 session in St. Louis, and to hold the State Association meeting just prior to that.

1854

This meeting was ostensibly held in St. Louis on the Friday preceding the annual session of the American Medical Association in St. Louis. Charles A. Pope was elected President, and Lexington is said to have been selected for the next meeting. No minutes of this meeting were found, but the attendance is reported to have been poor.



Charles A. Pope

1855

At 11:00 a. m., on April 10, 1855, the Association convened in the County Court House, at Lexington, Lafayette County. The

President, Charles A. Pope, being unable to attend, and with no Vice President attending, John B. Johnson presided. There were so few members in attendance, a short recess was taken.

On reconvening, the following officers were elected: J. B. Alexander, of Lexington, President; J. S. B. Alleyne, J. Wilcox, J. S. Long, James Sykes and J. Bull, Vice Presidents; W. P. Boulware and E. F. Smith, Secretaries; and G. W. Shewalter, Treasurer.

Most of the chairmen and members being absent, the transacted business was necessarily limited; yet resolutions were adopted recommending the *St. Louis Medical and Surgical Journal* and the local medical colleges to the profession. The teachers in the latter, however, were advised to adhere rigidly to the requirements of the American Medical Association.

The Association adjourned to meet in St. Louis on the second Tuesday in April, 1856.



J. B. Alexander

1856

The Association met in St. Louis on April 8. No proceedings are available, but a notice in the *St. Louis Medical and Surgical Journal*, 1856, states that the address of President Alexander "was an exceedingly able and well-written production." The next meeting was to be held in St. Joseph.

1857 to 1866

No records are available for these years and it is highly improbable that any meetings were held during this period. Everyone in Missouri was agitated by the occurrences prior to and during the Civil War. Then it took some time to return to comparative normalcy.

1867

For the purpose of reorganizing the Missouri State Medical Association, a committee consisting of M. A. Pallen, J. R. Washington, E. Montgomery, R. S. Anderson, J. M. Youngblood, G. F. Dudley, and John J. McDowell was appointed at a meeting of the St. Louis Medical Society on October 26, 1867. The convention assembled in Philharmonic Hall, in St. Louis, at 12:00 o'clock noon, on December 10. P. A. Heitz, of Palmyra, as chairman, and T. F. Prewitt, as Recording Secretary, were the temporary officers.

M. A. Pallen, as chairman of the Committee on Arrangements, delivered an address of welcome, and a Committee on Permanent Organization was appointed, consisting of G. F. Dudley, J. Green, J. R. Washington, J. H. Watters and J. W. Clemens. This committee reported a Constitution and By-Laws which were adopted.

The following officers were elected: President, G. A. Williams, Boonville; Vice Presidents, P. A. Heitz, Palmyra; J. H. Watters, J. B. Johnson and A. Hammer, St. Louis, J. F. S. Barbour, New Madrid; Recording Secretaries, T. F. Prewitt and J. W. Clemens, St. Louis; Corresponding Secretary, W. B. Outten, St. Louis; Treasurer, Thomas Kennard, St. Louis.

A resolution, presented by A. Hammer, of St. Louis, advocating the creation of a State Board of Medical Examiners, was discussed at length and finally passed by a vote of 52 to 38. Thirty-two members were absent or not voting. It also was decided to present a petition to the State Legislature advocating "higher standing of medical and literary attainments of students before graduation."

John Green spoke on refractive anomalies of the eye and presented a beautiful exhibit on astigmation and its correction.



G. A. Williams

The meeting adjourned after the election of the following officers: President, J. Woods, Kansas City; Vice Presidents, W. B. Morris, St. Louis County; B. J. Birch, Franklin County; M. A. Pallen, W. H. Cooper, and J. R. Washington, St. Louis; Corresponding Secretary, C. E. Briggs, St. Louis; Recording Secretaries, R. S. Anderson, St. Louis, and J. F. S. Barbour, New Madrid.

1868

At 12:00 o'clock noon, on Tuesday, April 21, the Association convened in Polytechnic Hall in St. Louis. In the absence of the President, Vice President W. B. Morris, of Bridgeton, called the meeting to order. E. Montgomery, chairman of the Committee on Arrangements, delivered his address of welcome of more than three thousand words.

The election of officers resulted as follows: President, Walter B. Morris, Bridgeton; Vice Presidents, M. A. Pallen, St. Louis; B. J. Birch, Franklin County; W. H. Cooper, J. R. Washington and G. Hurt, St. Louis; Recording Secretaries, R. S. Anderson. of St. Louis, and J. F. S. Barbour, New Madrid; Corresponding Secretary, Charles E. Briggs, St. Louis; Treasurer, E. S. Lemoine, St. Louis.

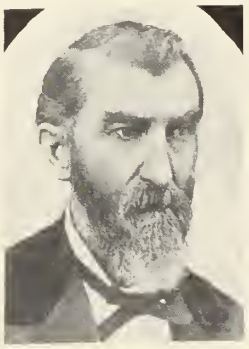
There were a considerable number of scientific papers and presentations, but the most notable was by J. T. Hodgen, who demonstrated his splint for fractures of the thigh, leg and arm. Most of the time was consumed in discussing local medical education, there being three medical schools in St. Louis, namely, The Missouri Medical College, The St. Louis Medical College and The Humboldt Medical College.

1869

The meeting was called to order by the Vice President, M. A. Pallen, in the Hall of the St. Louis Medical Society, at the corner of Sixth and St. Charles Streets, at 12:00 noon, April 27, 1869.

For the Committee on Arrangements, John S. Moore delivered the address of welcome in which he lamented the establishment of cheap and poor medical schools and made recommendations for their control.

The following officers were elected: President, Charles F. Clayton, Ralls County; Vice Presidents, LeGrand Atwood, Bridgeton; O. W. Ganss, Chariton County; J. M. Scott, J. B. Johnson, J. S. Moore, St. Louis; Recording Secretaries, Thomas Kennard and T. F. Prewitt, St. Louis; Corresponding Secretary, R. S. Anderson, St. Louis; Treasurer, G. M. B. Maughs, St. Louis.



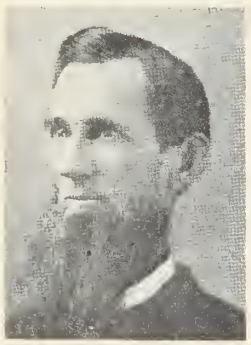
Charles F. Clayton

Medical education and medical licensure were discussed again at length, which resulted in a memorial to the American Medical Association asking for "a rigid code of ethics for the schools, such as it has done for the general profession." After disposing of considerable business, the Association adjourned to meet in St. Louis the next year. There were 147 members.

1870

The Association convened in the room of the Missouri Historical Society in the Polytechnic Building, S. W. Corner, Seventh and Chestnut Streets, St. Louis, on Tuesday, April 26, 1870.

Paul F. Eve, Nashville, Tennessee, Past President of the American Medical Association, was introduced as a distinguished guest and was accorded all the privileges of membership. He delivered an address.



T. B. Lester

A resolution was adopted petitioning the American Medical Association to publish a list of all the regular medical schools of the country. The usual resolutions on medical education were introduced and were followed by a lively discussion and final adoption. Papers on "Ophthalmology" were read by John Green and H. F. Gill, both of St. Louis.

There was a clinical meeting at the City Hospital upon invitation from the superintendent, Dr. Clark. William Dickinson and Louis Bauer demonstrated patients at the hospital.

It was decided to hold the next annual meeting in St. Louis again.

The following officers were elected: President, T. B. Lester, Kansas City; Vice Presidents, G. M. B. Maughs, St. Louis; G. B. Dysart, Paris; J. F. Atkinson, Lexington; E. Montgomery, St. Louis; John Bell, Louisiana; Recording Secretaries, R. S. Anderson, St. Louis, and T. F. Prewitt, St. Louis; Corresponding Secretary, Y. H. Bond, St. Louis; Treasurer, E. F. Smith, St. Louis.

The meeting was adjourned sine die at the end of the second day.

1871

The meeting was called to order by President T. B. Lester at 12:30 o'clock, in the Polytechnic Building, St. Louis, on Tuesday, April 25, 1871.

The scientific program consisted of the following papers: "The Classification of Disease," by J. L. Teed, Kansas City; "Middle Ear Sclerosis," by H. N. Spencer, St. Louis; "Strabismus," by John Green, St. Louis; "Intraocular Tumors," by H. F. Gill, St. Louis; "Skin Grafting," by John T. Hodgen, St. Louis.

A resolution was adopted urging better medical practice throughout the state. Another resolution endorsed the action of the American Medical Association establishing $5.00 as the minimum charge for examinations for life insurance. There also was a resolution against cheap medical schools.



J. E. Tefft

St. Joseph was chosen for the place of the next annual meeting.

The election of officers resulted as follows: President, J. E. Tefft, Springfield; Vice Presidents, Joseph Chew, Kansas City; G. C. Catlett, St. Joseph; D. H. Shields, Hannibal; H. H. Middlekamp, Warrenton; Thomas Kennard, St. Louis; Recording Secretaries, R. S. Anderson, St. Louis, and G. W. Broome, Moberly; Corresponding Secretary, W. W. Grissom, St. Louis; Treasurer, T. F. Prewitt, St. Louis.

1872

The Association met at St. Joseph, on Tuesday, April 22, 1872, at 2:00 p. m., in the rooms of the St. Joseph Improvement and Manufacturers Association. The Second Vice President, G. C. Catlett, St. Joseph, called the meeting to order in the absence of the President, J. E. Tefft, Springfield, who was unable to be present. The Rev. Dr. Runcie, of St. Joseph, offered the opening prayer. Hugh Trevor, president of the St. Joseph Medical Society, "delivered a graceful and hearty address of welcome."

F. T. Davis, for the Committee on Arrangements, announced that the Hannibal and St. Joseph and the Kansas City, St. Joseph & Council Bluffs railroads had agreed to issue excursion tickets or to furnish return tickets at one fifth the usual rate of fare. The North Missouri and Missouri Pacific roads had refused to allow any reduction of fare. (Even at that, some of the older members may remember with pleasure the time when all railroads made a substantial reduction of fares for attendance at conventions.)

Among the papers read was one entitled "A Plea for Antiphlogistic Treatment" and another "Psychological Medicine." Still another was one entitled "Tranquilization as an Element of Cure."

An entire evening was devoted to the adoption of a new Constitution and By-Laws. Much time was spent in the discussion of medical education. It finally resulted in the adoption of a resolution advocating the enactment of a state law creating a State Board of Medical Examiners appointed by the Association, subject to the approval of the Governor.

Moberly was selected for the place of the next meeting.



E. Montgomery

The election of officers resulted as follows: President, E. Montgomery, St. Louis; Vice Presidents, Hugh Trevor, St. Joseph; S. S. Todd, Kansas City; T. J. Montgomery, Sedalia; D. H. Shields, Hannibal, and J. P. Dimmitt, Clinton; Recording Secretaries, J. P. Chesney, St. Joseph, and E. W. Schauffler, Kansas City; Corresponding Secretary, H. F. Gill, St. Louis; Treasurer, E. A. Conelson, St. Joseph.

1873

The meeting was called to order in Moberly, at 11:00 a. m., on May 1, 1873, by the Vice President, S. S. Todd, Kansas City. The President, E. Montgomery, was prevented from attending the meeting by "imperative professional engagements." The Rev. A. Steed offered prayer, and J. C. Tedford, chairman of the Committee on Arrangements, delivered an address of welcome on behalf of the Randolph County Medical Society.



S. S. Todd

Dr. Tedford also announced that the committee had rented the hall in which they were meeting for three days at ten dollars a day. This action was approved. Roll call found only twenty-three "delegates" present, but by the time of the evening session twenty more had arrived. Medical education was discussed but no decisive action was taken.

At the morning session of the second day the Treasurer was instructed to secure fifty copies of each of the two morning papers for use in the meeting hall. The minutes fail to state why this was done or how these papers were to be used.

A paper by H. N. Spencer, St. Louis, and another by W. C. Glasgow, St. Louis, are particularly mentioned as "able and interesting."

Sedalia was chosen for the next meeting place.

The election of officers resulted as follows: President, S. S. Todd, Kansas City; First Vice President, E. A. Gore, Paris; Second Vice President, W. O. Torrey, Brookfield; Third Vice President, G. W. Broome, Moberly; Fourth Vice President, J. B. Jones, Sedalia; Fifth Vice President, W. H. Bryant, Savannah; Recording Secretaries, E. W. Schauffler, Kansas City, and J. W. Trader, Sedalia; Corresponding Secretary, J. P. Dimmitt, Clinton; Treasurer, R. H. Brown, Kirksville.

1874

The meeting convened in Smith Hall, Sedalia, at 11:00 a. m., on Tuesday, April 21, 1874. In the absence of the President, S. S. Todd, the Second Vice President, W. O. Torrey, Hannibal, presided. The Rev. Dr. Wheeler opened the meeting with prayer.

The Committee on Medical Education presented a lengthy report which was discussed freely and finally adopted. It contained nothing definite or important. A long resolution for the control of quackery, like most of its kind, was impractical and wisely failed of adoption. A resolution urging the regular physicians of every county to organize a medical society was adopted, as was another resolution that no physician should be compelled by the courts to testify, as an expert, without being allowed a proper fee.

The scientific papers apparently were interesting but there were none of outstanding merit.

Jefferson City was selected for the next meeting place.



W. O. Torrey

The election of officers resulted as follows: President, W. O. Torrey, Hannibal; First Vice President, Thomas J. Montgomery, Sedalia; Second Vice President, J. S. B. Alleyne, St. Louis; Third Vice President, F. M. Johnson, Platte City; Fourth Vice President, W. C. Webb, Dover; Fifth Vice President, W. S. Shankland, Clinton; Recording Secretary, E. W. Schauffler, Kansas City; Corresponding Secretary, A. S. Cloud, Chillicothe; Treasurer, John T. Hodgen, St. Louis.

1875

The meeting convened in the Senate Chamber of the State Capitol, at Jefferson City, on Tuesday, April 20, 1875, at 10:00 a. m. The President being absent, the meeting was called to order by the Second Vice President, J. S. B. Alleyne, St. Louis. The Rev. W. G. Keady offered prayer.

G. B. Winston, chairman of the Committee on Arrangements, extended the greeting and welcome of the profession and citizens of Jefferson City.

Twenty-two members answered the roll call. It is not stated whether or not other members arrived later. There probably were not many because the Corresponding Secretary was instructed to send out notices of the meetings to all physicians of the state thirty days before each meeting.

Repair of lacerated perineum and the employ-

ment of anesthetics in obstetrics were discussed at length. Laryngeal diphtheria and tracheotomy were discussed throughout most of two separate sessions. (It must be noted that this was almost ten years before Joseph O'Dwyer invented his apparatus for intubation of the larynx and about twenty years before Behring's diphtheria antitoxin.)



John T. Hodgen

It was decided to hold the next meeting in St. Louis.

The election of officers resulted as follows: President, John T. Hodgen, St. Louis; First Vice President, F. M. Johnson, Platte City; Second Vice President, J. M. Allen, Liberty; Third Vice President, J. S. B. Alleyne, St. Louis; Fourth Vice President, J. T. Wilson, Weston; Fifth Vice President, G. B. Winston, Jefferson City; Recording Secretaries, E. W. Schauffler, Kansas City, and H. N. Spencer, St. Louis; Corresponding Secretary, John H. Britts, Clinton; Treasurer, A. N. Kincannon, Clinton.

1876

The meeting was called to order at 10:00 a. m., on Tuesday, April 18, 1876, in the Polytechnic Hall, St. Louis, by the President, John T. Hodgen. An opening prayer was made by the Rev. Dr. Burlingham.



J. W. Trader

The following officers were elected: President, J. W. Trader, Sedalia; Vice Presidents, E. W. Schauffler, Kansas City; H. H. Middlekamp, Warrenton; W. I. Heddens, St. Joseph; W. E. Glenn, Rolla; S. T. Newman, St. Louis; Recording Secretaries, William Porter, St. Louis; D. R. Porter, Kansas City; Corresponding Secretary, A. J. Steele, St. Louis; Treasurer, A. H. Conkwright, Sedalia.

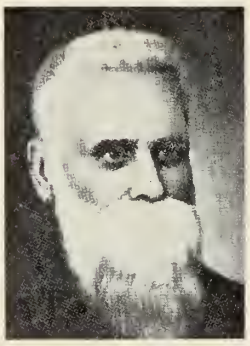
Many subjects were discussed and some action was taken on sanitation in the state and on medical education and licensure. The autopsy on the late Governor Trustin Polk was presented and discussed, as were quite a number of scientific subjects.

It was decided to meet in Kansas City in 1877.

1877

The meeting was called to order by the President, J. W. Trader, in the Knights of Pythias Hall, at Kansas City at 10:00 a. m., on April 17, 1877. After a recess to permit the Committee on Credentials to attend to its duty and report, S. S. Todd, chairman of the Committee on Arrangements, heartily welcomed the physicians from both Missouri and Kansas to Kansas City.

The following officers were elected: President, F. M. Johnson, Platte City; Vice Presidents, D. R. Porter, Kansas City; E. C. Evans, Sedalia; N. F. Essig, Plattsburg; W. C. Glasgow, St. Louis; P. S. Fulkerson, Lexington; Recording Secretaries, A. J. Steele, St. Louis; E. W. Schauffler, Kansas City; Corresponding Secretary, C. L. Hall, Lexington; Treasurer, Jacob Geiger, St. Joseph.

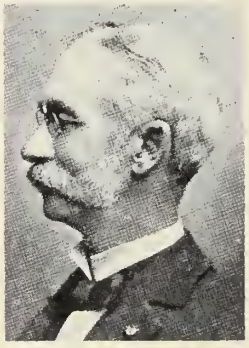


F. M. Johnson

There were eleven formal papers, some of which had titles that look strange at this late date, such as "Syphilitic Phthisis" and "Summer Complaints of Children."

Considerable routine business was transacted and Brownsville, in Saline County, was selected for the next meeting place.

There were eighty-nine members, of which sixteen were delegates from eight county societies, and nineteen guests in attendance. The Constitution provided for four classes of members, namely: 1. associate members; 2. delegates; 3. honorary members; 4, members by invitation. The great variations in the numbers of members listed from year to year is due to the fact that few if any members paid anything except the three dollars registration fee at the annual meetings.



E. W. Schauffler

1878

In the absence of the President, F. M. Johnson, the Vice President, N. F. Essig, of Plattsburg, called the Association to order at Sweet Springs, Saline County, on May 21, 1878, at 10:00 a. m. J. D. Yantis, M.D., D.D., invoked Divine blessing, and J. M. Pelot welcomed the members.

The following officers were elected: President, E. W. Schauffler, Kansas City; Vice Presidents, G. M. B. Maughs, St. Louis; W. P. King, Sedalia; W. Humphrey, Mexico; J. M. Pelot, Brownsville; Jacob Geiger, St. Joseph; Recording Secretaries, A. J. Steele, and G. A. Moses, St. Louis; Corresponding Secretary, J. R. Hall, Marshall; Treasurer, A. B. Sloan, Kansas City.

The outstanding feature of this meeting was the report of J. W. Trader, of Sedalia, chairman of a "Special Committee on College Faculties for Imparting Medical Education." It considered all the offerings of the ten then existing medical schools of the state and recommended only four as "representative of legitimate medicine in the state." The report was accepted.

The Association adjourned to meet at Sweet Springs on the third Tuesday in May, 1879.

1879

The meeting was called to order by the President,

E. W. Schauffler, in the chapel of the State University building at Columbia, Boone County, on May 20, 1879, at 10:30 a. m. B. A. Watson, Mayor of Columbia, delivered an address of welcome.

The following officers were elected: President, G. M. B. Maughs, St. Louis; Vice President, A. W. McAlester, Columbia; C. Lester Hall, Marshall; W. H. Bryant, Savannah; C. A. Thompson, Jefferson City; C. N. Gerard, Shelbina; Recording Secretaries, A. J. Steele, and W. E. Fischel, St. Louis; Corresponding Secretary, E. C. Evans, Sedalia; Treasurer, A. B. Sloan, Kansas City.



G. M. B. Maughs

There were some interesting papers, but most of the business transacted was of a routine nature, except the report of the Committee on Medical Education which reported specifically on the facilities of the four satisfactory medical schools of the state.

It was decided to meet in Carthage, Jasper County, on May 18, 1880.

1880

The meeting was called to order by the President, G. M. B. Maughs, in the Opera House, at Carthage, Jasper County, at 4:00 p. m., May 18, 1880. The Rev. Mr. Williamson offered prayer. The mayor of Carthage, Hon. Amos Caffe, M.D., delivered an address of welcome.



J. M. Allen

The following officers were elected: President, J. M. Allen, Liberty; Vice Presidents, T. U. Flanner, Springfield; T. B. Lloyd, Paris; L. I. Matthews, Carthage; Recording Secretaries, A. J. Steele and F. J. Lutz, St. Louis; Treasurer, C. A. Thompson, Jefferson City.

The President's address, of about 4,000 words, by Dr. Maughs, was entitled "Medical Ultraism." It was an interesting oration and characteristic of the man. No abstract can do justice to it, it must be read.

Another resolution advocating a Board of Health for Missouri was adopted, and there were eleven good papers by outstanding local men.

For the 1881 meeting, Mexico was selected.

1881

The meeting convened in the Opera House, at Mexico, Audrain County, May 17, 1881, at 4:15 p. m. President J. M. Allen presided. The Rev. J. J. Grasty, D.D., offered prayer. There were addresses of welcome by Capt. J. M. Gordon, president of the city council, and W. H. Lee.

The scientific program had no special features. There was much routine business, including again the control of medical practice and education.

The Nominating Committee reported on the afternoon of the third day, and the result of the election was as follows: President, Willis P. King, Sedalia; Vice Presidents, B. J. Milam, Macon; A. E. Gore, Paris; G. Hurt, St. Louis; E. A. Waggoner, Carrollton; B. F. Wilson, Salisbury; Recording Secretaries, C. A. Todd, St. Louis; J. H. Duncan, Columbia; Corresponding Secretary, William Dickinson, St. Louis; Treasurer, C. A. Thompson, Jefferson City.

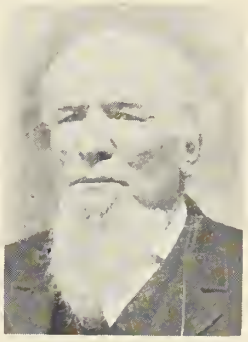


Willis P. King

Hannibal was selected for the 1882 meeting place.

1882

The meeting was called to order by President Willis P. King in Brittingham Hall, Hannibal, on May 16, 1882, at 7:20 p. m. The Rev. Dr. C. S. Savage opened with a prayer. The Hon. Joseph Rowe, mayor of Hannibal, and C. F. Clayton welcomed the Association. Dr. King read a President's address on "Quacks and Quackery in Missouri." It has a length of thirty-three octavo printed pages.



A. E. Gore

Among the scientific contributions was one by P. V. Schenck in which he described an ingenious contraption for taking vaginal injections. It consisted of a series of pipes fastened to both the hot and the cold water supply plumbing. The flow could be regulated by valves, there being a pressure gauge, and medicine could be added from a glass receptacle which was attached to a larger tube before the mixture reached the rubber hose leading to a vaginal tip. This apparatus was in use at the Female Hospital in St. Louis, where Dr. Schenck was in charge.

The election resulted as follows: President, A. E. Gore, Paris; Vice Presidents, Pinkney French, Mexico; R. F. Brown, Carthage; P. S. Fulkerson, Lexington; O. D. Fitzgerald, Lathrop; F. J. Lutz, St. Louis; Recording Secretaries, C. A. Todd, St. Louis; J. H. Duncan, Columbia; Corresponding Secretary, William Dickinson, St. Louis; Treasurer, C. A. Thompson, Jefferson City. There were 151 members.

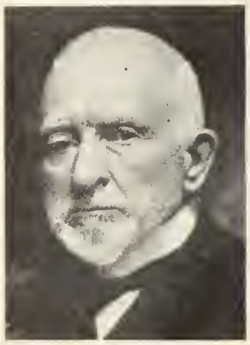
The meeting adjourned to meet in Jefferson City.

1883

The Association convened in the Hall of Representatives of the Capitol, at Jefferson City, on May 15, 1883, at 3:00 p. m., with the President, A. E. Gore, in the chair. After the convocation by the

Rev. W. B. Palmore, Governor T. T. Crittenden delivered an eloquent address of welcome.

A resolution praising the Library of the Surgeon-General's Office at Washington and the Army Medical Museum and advocating their adequate financial support was adopted.



E. H. Gregory

A resolution declaring the term "allopath" derogatory to the profession was adopted.

A motion thanking the State Legislature for passing "the law enacting a State Board of Health" was carried.

The election resulted as follows: President, E. H. Gregory, St. Louis; Vice Presidents, O. A. Williams, Datzen; J. D. Griffith, Kansas City; John H. Duncan, Columbia; T. J. Norris, Macon; C. H. Hughes, St. Louis; Recording Secretaries, A. H. Ohmann-Dumesnil, St. Louis; D. V. Wale, Jasper; Corresponding Secretary, N. F. Essig, Plattsburg; Treasurer, C. A. Thompson, Jefferson City.

A resolution urging a National Board of Health was adopted. There was an entertainment in the Masonic Hall. Scientific papers were only of passing interest. Adjournment was taken to meet in Sedalia on the second Tuesday in May, 1884.



H. H. Middlekamp

1884

The meeting convened in Sicher's Park Hall, at Sedalia, on May 20, 1884, at 10:15 a. m. President E. H. Gregory presided. The Rev. Mr. Foster offered a prayer. In the absence of the mayor, Mr. Longan delivered an address of welcome on behalf of the city.

The business transacted was routine and the scientific program mediocre.

The following officers were elected: President, H. H. Middlekamp, Warrenton; Vice Presidents, T. F. Prewitt, St. Louis; W. E. Evans, Boonville; B. G. Dysart, Paris; H. M. Lane, Smithfield; S. C. Griswold, New Haven; Recording Secretaries, J. H. Thompson, Kansas City; N. M. Baskett, Moberly; Corresponding Secretary, F. J. Lutz, St. Louis; Treasurer, C. A. Thompson, Jefferson City.

St. Joseph was selected for the 1885 meeting place.

1885

In the absence of President Middlekamp, the meeting on May 12, 1885, at St. Joseph, was called to order by Vice President W. E. Evans. President Middlekamp arrived later and presided thereafter.

Among other business, the question of a permanent headquarters and the safe preservation of the records were discussed. The legal status of the Association being in doubt, a committee was appointed "to take charge of that business."



G. C. Catlett

The election resulted as follows: President, G. C. Catlett, St. Joseph; Vice Presidents, C. A. Todd, St. Louis; J. W. Brent, Tipton; J. W. Jackson, Kansas City; D. H. Shields, Hannibal; G. M. Dewey, Keytesville; Recording Secretaries, J. H. Thompson, Kansas City; J. C. Mulhall, St. Louis; Corresponding Secretary, R. F. Brooks, Carthage; Treasurer, C. A. Thompson, Jefferson City.

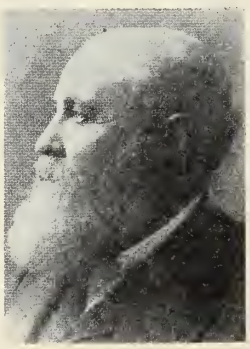
It was decided to hold the 1886 meeting in St. Louis on the Monday preceding the meeting of the American Medical Association.

1886

The Association met in Entertainment Hall of the Exposition Building (on Olive between 14th and 15th), in St. Louis, on May 3, 1886. C. A. Todd, First Vice President, took the Chair at 10:20 a. m., in the absence of President Catlett.

The hall being too dark, the Association transferred to the vestry of the First Presbyterian Church, 14th and Lucas Place (now Locust Street).

A satisfactory "Anatomy Act" was urged.



J. W. Jackson

The election resulted as follows: President, J. W. Jackson, Kansas City; Vice Presidents, Woodson Moss, Columbia; W. E. Fischel, St. Louis; C. L. Lamb, Hannibal; Tinsley Brown, Hamilton; J. S. Gillet, Rich Hill; Recording Secretaries, J. C. Mulhall, St. Louis; E. S. Cave, Mexico; Corresponding Secretary, R. F. Brooks, Carthage; Treasurer, C. A. Thompson, Jefferson City.

The meeting adjourned on the afternoon of the same day to meet at Macon City on the second Tuesday in May, 1887.

1887

The Association convened in the Opera House, at Macon City, on May 10, 1887, at 11:15 a. m., with President J. W. Jackson in the chair. The Right Rev. Ethelbert Talbot offered prayer.

C. A. Todd reported as chairman of the special committee that a satisfactory Anatomy Act had been enacted. It provided for an Anatomy Board consisting of "professors and demonstrators of anatomy of the medical schools and colleges of the state" to whom all unclaimed dead human bodies were to be delivered and by that board delivered

to medical schools in proportion to the number of students enrolled. That committee had been appointed two years previously and this act is still in force today (1950) and has been eminently satisfactory.

The election of officers resulted as follows: President, F. J. Lutz, St. Louis; Vice Presidents, T. C. Boulware, Butler; T. B. Jackson, Macon; J. R. Hall, Marshall; W. B. Adams, Montgomery City; J. W. Heddens, St. Joseph; Recording Secretaries, J. C. Mulhall, St. Louis; J. H. Duncan, Kansas City; Corresponding Secretary, W. E. Evans, Boonville; Treasurer, C. A. Thompson, Jefferson City.



Frank J. Lutz

Among the scientific papers, the one of outstanding significance was that by A. J. Steele, St. Louis, on "The Early Recognition of Hip Disease."

Kansas City was selected for the 1888 meeting.

1888

This meeting was called to order by President F. J. Lutz in the Music Hall, Kansas City, on April 17, at 10:25 a. m. The Rev. J. A. B. Lowry offered prayer. Hon. H. C. Krumpf, mayor of Kansas City, delivered an address of welcome.

There were many scientific papers, some of considerable merit. The business transacted was all of a routine nature.



A. W. McAlester

The following officers were elected; President, A. W. McAlester, Columbia; Vice Presidents, J. D. Griffith, Kansas City; J. H. Britts, Clinton; W. A. Camp, Springfield; H. C. Dalton, St. Louis; J. B. Winn, Macon City; Recording Secretaries, J. C. Mulhall, St. Louis; J. H. Duncan, Kansas City; Corresponding Secretary, L. I. Matthews, Carthage; Treasurer, C. A. Thompson, Jefferson City.

Springfield was chosen for the next meeting place. The Association had 260 members enrolled.

1889

President A. W. McAlester opened the meeting in the Y. M. C. A. Hall, in Springfield on Tuesday, May 21, at 10:30 a. m. The Rev. Dr. G. W. Hughey offered prayer, and an address of welcome was delivered by the Hon. Ralph Walker, mayor of the city.

The usual number of scientific papers were read. Among these was the first one of many on appendicitis. The State General Assembly was memorialized by the appointment of a committee to "take action toward the perpetuation of the State Board of Health."

Only 152 members belonged to the Association.

Excelsior Springs was the choice for the place of the next meeting.

The following officers were elected: President, L. I. Matthews, Carthage; Vice Presidents, Jacob Geiger, St. Joseph; A. B. Miller, Macon City; N. Guhman, St. Louis; J. F. Robinson, Windsor; W. C. Tyree, Kansas City; Recording Secretaries, J. C. Mulhall, St. Louis; Joseph Sharp, Kansas City; Corresponding Secretary, J. R. Fritts, Mexico; Treasurer, C. A. Thompson, Jefferson City.



L. I. Matthews

1890

The Association met in the Opera House, at Excelsior Springs at 11:00 a. m., May 6, 1890. The meeting was called to order by the President, L. I. Matthews, and Rev. G. W. Rogers offered prayer.

The Committee on Credentials, which usually had some difficulty in seating delegates, had more than its customary share of trouble at this meeting. This was due to the many small medical societies which were organized by rival groups in some localities. These rival groups carried their differences even into the realm of the State Association, and these obstacles to harmony ceased only after the American Medical Association organized itself to include constituent state associations and component county units.



A. B. Sloan

The resolutions adopted again included the State Board of Health, but this time the mental institutions of the state also received attention. There were seventeen scientific papers, some of which were instructive.

The officers elected were: President, A. B. Sloan, Kansas City; Vice Presidents, N. B. Carson, St. Louis; G. M. Richmond, St. Joseph; W. A. McAllister, Centralia; James Gordon, Nevada; M. B. Chandler, West Plains; Recording Secretaries, J. C. Mulhall, St. Louis; Thomas Chowning, Florida; Corresponding Secretary, T. E. Holland, St. Louis; Treasurer, C. A. Thompson, Jefferson City.

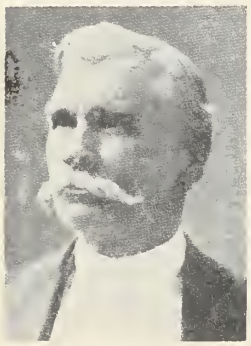
The members were so pleased with Excelsior Springs that they again selected it for the place of the next annual meeting.

1891

President A. B. Sloan called the Association to order in the Opera House, Excelsior Springs, at

2:00 p. m. on May 19, 1891. Prayer was offered by the Rev. J. V. B. Black. Mr. H. M. Holden delivered an address of welcome, and R C. Higgins, Higginsville, responded in behalf of the Association.

The presidential address and several resolutions were devoted to public health, medical education and sanitation. After considerable discussion, no action was taken. One resolution defined a medical college of good standing to mean "a college that requires of its matriculates attendance upon at least three graded courses of lectures and clinics of not less than six months each, no two of which shall be in one year." The scientific papers as usual were by the members of the Association.



T. F. Prewitt

The following officers were elected: President, T. F. Prewitt, St. Louis; Vice Presidents, E. A. Culin, Nevada; Tinsley Brown, Hamilton; Paul Paquin, Columbia; T. E. Potter, St. Joseph; G. R. Highsmith, Carrollton; Recording Secretaries, Lyman A. Berger, Kansas City; Frank R. Fry, St. Louis; Corresponding Secretary, J. H. Duncan, Kansas City; Treasurer, C. A. Thompson, Jefferson City.

There was a balance of $10.82 in the treasury, and Pertle Springs was selected for the next meeting place.

1892

The meeting at Pertle Springs, on May 17, 1892, at 10:30 a. m., was called to order by the President, T. F. Prewitt. The Rev. M. B. Irwin, Warrensburg, offered prayer. Hon. S. B. Sparks, Warrensburg, delivered an address of welcome.



A. B. Miller

Several resolutions were adopted. One resolution appealed to the State Legislature to appropriate an adequate compensation to the Secretary of the State Board of Health which apparently had not been done for more than a year. Another advocated disinfection of infected garments and bedding with steam. Another urged the discontinuance of prescribing proprietary remedies. Another lengthy resolution covered the care of the insane.

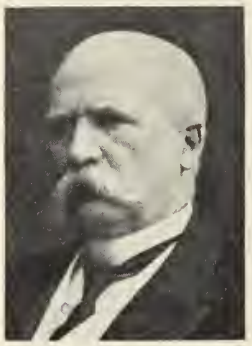
The President's address contained several recommendations, such as a permanent meeting place, the creation of sections, and cooperation with a Pan-American Medical Congress. All were approved but one must await the future for the results.

The following officers were elected: President, A. B. Miller, Macon City; Vice Presidents, L. Bremer, St. Louis; G. A. Goben, Kirksville; B. E. Fryer, Kansas City; B. A. Wilkes, Bowling Green; J. A. Mann, Wellington; Recording Secretaries, Frank R. Fry, St. Louis; E. Van Note, Hamilton; Corresponding Secretary, C. F. Wainright, Kansas City; Treasurer, C. A. Thompson, Jefferson City.

Sedalia was chosen for the 1893 meeting.

1893

The meeting was called to order by President A. B. Miller, of Macon City, at 10:00 a. m., May 16, 1893, at Sedalia. Prayer was offered by the Rev. Alonzo Pearson. Hon. Charles E. Yeater delivered an address of welcome on behalf of the city, and George Scott did likewise for the local medical profession.



W. H. Evans

The President's address contained several recommendations which were adopted, necessitating amendments to the by-laws. Thereby the number of standing committees was reduced from twenty-two to nine. The Secretary's term of office was lengthened to five years.

The election resulted as follows: President, W. H. Evans, Sedalia; Vice Presidents, H. C. Dalton, St. Louis; J. H. Duncan, Kansas City; R. F. Brooks, Carthage; J. O. Ducker, Louisiana; E. F. Yancey, Sedalia; Recording Secretaries, F. R. Fry, St. Louis; J. L. Day, Lebanon; Corresponding Secretary, C. F. Wainright, Kansas City; Treasurer, C. A. Thompson, Jefferson City.



J. M. Richmond

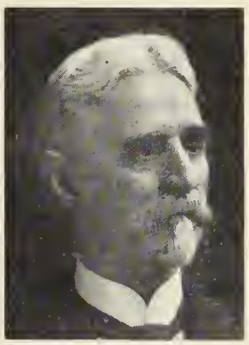
There were 183 members in attendance, and Lebanon was selected for the next meeting place.

1894

The President, W. H. Evans, called the meeting to order in the Gasconade Hotel, Lebanon, on May 15, 1894, at 10:30 a. m. The Rev. B. F. Thomas offered prayer. At the evening meeting of the same day, the Hon. W. I. Wallace delivered an eloquent address of welcome. The President responded and delivered his address in which, among other recommendations, he again brought up the National Department of Public Health.

A resolution advocating the establishment of a state institution for the feeble-minded was passed, and a committee was created to bring this matter to the attention of the State Legislature. Some of the scientific presentations were interesting but there was little of lasting value.

The following officers were elected: President, J. M. Richmond, St. Joseph; Vice Presidents, J. P. Thatcher, Pisgah; A. B. Shaw, St. Louis; James McComb, Lebanon; J. N. Baskett, Hannibal; H. C. Crowell, Kansas City; Recording Secretaries, F. R. Fry, St. Louis; P. L. Kabler, Hannibal; Corresponding Secretary, C. F. Wainright, Kansas City; Treasurer, C. A. Thompson, Jefferson City.



C. Lester Hall

Hannibal was chosen for the place of the next annual meeting.

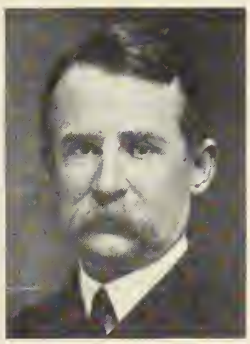
1895

The meeting in the Opera House, at Hannibal, was called to order by the President, J. M. Richmond, at 10:30 a. m., on May 21, 1895. Rev. S. D. Dutcher offered prayer. Mayor C. Albertson delivered an address of welcome, and J. N. Baskett responded for the medical profession.

A resolution opposing the reduction of scholastic age of children from 6 to 5 years by amending the State Constitution was adopted. The action of the Governor in vetoing the "Osteopathic Bill" was approved. A legislative act for the prevention of blindness in infants was endorsed.

There was a balance of $5.58 in the treasury.

The following were elected as officers: President, C. Lester Hall, Kansas City; Vice Presidents, J. H. Thompson, Kansas City; H. C. Shuttee, West Plains; J. D. Potts, Boonville; Edward Borck, St. Louis; Recording Secretaries, F. R. Fry, St. Louis; T. B. Hall, Marshall; Corresponding Secretary, C. F. Wainright, Kansas City; Treasurer, C. A. Thompson, Jefferson City.



J. H. Duncan

The Association voted to hold the 1896 meeting in Sedalia.

1896

The meeting was called to order by President C. Lester Hall, Kansas City, at 10:15 a. m. in the Pettis County Court House in Sedalia on May 19. Prayer was offered by the Rev. J. F. Seibert, Pastor of the English Lutheran Church of Sedalia. Judge W. S. Shirk delivered an address of welcome to which W. B. Outten of St. Louis responded.

A motion to memorialize the Legislature for an appropriation to enable the Bacterial Department of the State University to manufacture diphtheria antitoxin and antitetanic serum and furnish it to physicians at cost was adopted.

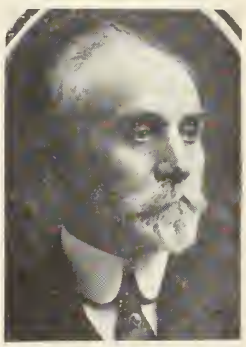
The admirable presidential address by C. Lester Hall contained many recommendations, in which the reference committee concurred but action was deferred. There were many good scientific papers. The State Board of Health was commended for "its advancement of the standard of higher medical education."

St. Louis was selected for the next annual meeting and arrangements made for holding it jointly with the 1897 session of the Illinois State Medical Association at East St. Louis.

The election of officers resulted as follows: President, J. H. Duncan, St. Louis; Vice Presidents, C. H. Wallace, St. Joseph; J. M. Langsdale, Kansas City; Thos. Chowning, Hannibal; J. J. Russell, California; J. H. Britts, Clinton; Recording Secretaries, J. N. Jackson, Kansas City; Thomas Hall, Hannibal; Corresponding Secretary, A. F. Dresel, Sedalia; Treasurer, W. E. Evans, Boonville.

1897

The Association met in the Century Theater (northwest corner, Ninth and Olive streets) in St. Louis and was called to order at 10:30 a. m. on May 18. The Rev. N. Luckok, Pastor of the Union Methodist Church, gave the invocation. The Hon. Henry Ziegenhein, Mayor of St. Louis, welcomed the physicians of Missouri to the city. To this the "Nestor of the Medical Association of Missouri," E. H. Gregory, responded. A. B. Miller, Macon, also spoke for the Association.



Jacob Geiger

The question of acceptance of the credentials of members came in for its share of discussion, as had often happened before the later organization was perfected. It finally was decided that those who have no credentials from local societies but who are vouched for by some members, should be seated as members.

The meeting of the evening of the first day was held in East St. Louis with the Illinois State Medical Association. That of the evening of the second day was held jointly with the latter association in St. Louis, the officers of both organizations occupying the stage of the Century Theater together.

The scientific program was good but not of the high quality as in the previous year. Excelsior Springs was selected for the next annual meeting. For some reason this later was changed to Kansas City.

The following was the result of the election: Presi-

dent, Jacob Geiger, St. Joseph; Vice Presidents, A. R. Kieffer, St. Louis; U. S. Wright, Fayette; J. J. Norwine, Bismarck; John Punton, Kansas City; J. H. P. Baker, Salisbury; Recording Secretaries, J. N. Jackson, Kansas City; B. C. Hyde, Kansas City; Corresponding Secretary, A. F. Dresel, Sedalia; Treasurer, W. E. Evans, Boonville.

1898

E. Von Quast, chairman of the Committee on Arrangements, called the meeting to order in the Lyceum Hall, Kansas City, on May 24, 1898, at 10:20 a. m. The Rev. Dr. Quayle pronounced the invocation. Mayor James M. Jones delivered an address of welcome, and H. C. Shuttee responded in behalf of the Association. President Jacob Geiger then took the chair.

"State Medicine by common consent is defined to be all those agencies which lead toward giving the people an educated profession, and such instructions in the laws of hygiene as will increase the health and vigor of the citizens." Thus began a paper by J. M. Allen, Liberty, and this statement will assist in understanding some of the resolutions adopted at this and other meetings. One adopted resolution was "to have lectures on state medicine delivered before the County Institutes of each county in the state and before the State Teachers Institute." Another resolution created a committee of fifteen to prepare an address to the medical profession to urge those in the profession to interest themselves in "public health matters and medical education." Still another requested the "homeopathic and eclectic schools of medicine to join us in getting an educated medical profession"; also one electing the Superintendent of Instruction to the committee for the same purpose. From this it can be seen how determined the Association was to achieve this end.



George R. Highsmith

The scientific papers reflected well the medical knowledge of that period.

Joplin was chosen for the next meeting place.

The election resulted as follows: President, George R. Highsmith, Carrollton; Vice Presidents, W. A. McCandless, St. Louis; C. F. Wainright, Kansas City; W. S. Allee, Olean; J. D. Brummall, Salisbury; W. E. Lucas, Minden; Recording Secretaries, A. F. Dresel, Sedalia; B. C. Hyde, Kansas City; Corresponding Secretary, E. Van Note, Hamilton; Treasurer, U. S. Wright, Fayette.

1899

This meeting was called to order at 10:00 a. m., in Sedalia, on May 16, 1899, by W. H. Evans, of Sedalia. Rev. Bidler pronounced the invocation. Mayor W. C. Overstreet delivered the address of welcome, to which L. I. Matthews, of Joplin, responded. The President, G. R. Highsmith, was introduced and then presided. His address on the medical profession's contributions to literature and science was excellent.



Walter B. Dorsett

The Constitution and By-Laws were proposed to have three kinds of members, viz.: 1. delegates, 2. honorary members, 3. members by invitation. Among other changes was the raising of the dues to $4.

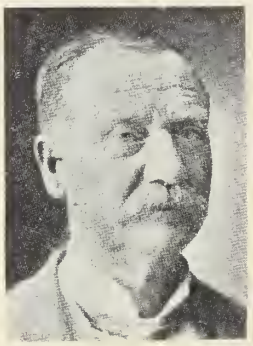
The scientific presentations contained nothing unusual, and other business was also of routine character.

Mexico was the unanimous choice for the place of the next meeting.

The following officers were elected: President, W. B. Dorsett, St. Louis; Vice Presidents, J. F. Binnie, Kansas City; G. M. Nichols, Higbee; W. C. Overstreet, Sedalia; C. R. Day, Mayview; E. L. Priest, Nevada; Recording Secretary, Bennett C. Hyde, Kansas City; Assistant Recording Secretary, Jesse S. Myer, St. Louis; Corresponding Secretary, E. S. Cave, Mexico; Treasurer, J. F. Welch, Salisbury.

1900

On May 15, 1900, at 9:00 a. m., the meeting in the Opera House, at Mexico, was called to order by J. Rule Fritts, chairman of the Committee on Arrangements. The Rev. Hanna pronounced the invocation. The Hon. J. O. Williams delivered the address of welcome, to which A. W. McAlester responded. The President, Walter B. Dorsett, was introduced and took charge of the meeting.



U. S. Wright

Two letters from the St. Louis Medical Society were read explaining that while it always had had the "authority to discipline its members," its charter had been amended in April to give it that power specifically.

The scientific papers were of superior merit. It seems as if the many well-trained young specialists felt the influence of the turn of the century, which spurred them to greater and better efforts.

The amendments to the Constitution and By-Laws proposed at the last meeting were adopted. The report of the committee embodying an act creating a State Board of Health was accepted.

Emory Lanphear read a paper, entitled "Should the Specialist Pay a Commission to the General

Practitioner?" in which he advocated this practice. As was expected, it created much discussion and rightful criticism.

Medical Education and State Medicine came in for their share of discussion.

The next meeting was scheduled for the second Tuesday in May, 1901, in Jefferson City.

The election of officers resulted as follows: President, U. S. Wright, Fayette; Vice Presidents, D. C. Gore, Marshall; J. R. Fritts, Mexico; R. S. Kelso, Joplin; Thos. Chowning, Hannibal; Franklin E. Murphy, Kansas City; Recording Secretary, B. C. Hyde, Kansas City; Assistant Recording Secretary, W. A. Braecklein, Higginsville; Corresponding Secretary, C. R. Dudley, St. Louis; Treasurer, J. Franklin Welch, Salisbury.

1901

The meeting was called to order by R. E. Young, chairman of the Committee on Arrangements, in the Chamber of the House of Representatives of the Capitol, in Jefferson City, on May 21, 1901, at 9:45 a. m. The Rev. Mr. Barnes delivered the invocation. Governor Alexander M. Dockery, who had been a practicing physician and at one time a member of the Association, delivered an address of welcome, to which C. R. Woodson, St. Joseph, responded. President U. S. Wright was then introduced.



J. D. Griffith

The Committee on State Legislation reported on the Medical Practice Act which the State Legislature passed. It was not as good as they had hoped but was the best that they were able to obtain.

There was a reception in the Governor's Mansion on Wednesday evening. There were too many papers on the program. Sixteen were read by title and referred to the Publication Committee.

The following officers were elected: President, J. D. Griffith, Kansas City; Vice Presidents, R. E. Young, Jefferson City; John C. Whaley, Osceola; R. M. Funkhouser, St. Louis; J. F. Campbell, Callao; G. W. Vineyard, Jackson; Recording Secretary, B. C. Hyde, Kansas City; Assistant Recording Secretary, F. W. Burke, Laclede; Corresponding Secretary, C. W. Fassett, St. Joseph; Treasurer, J. Franklin Welch, Salisbury.

St. Joseph was selected for the next meeting place.

1902

This meeting was called to order in the auditorium of the Y. M. C. A., at St. Joseph, by C. H. Wallace, chairman of the Committee on Arrangements, on May 20, 1902. Rev. Dr. W. R. Dobyns delivered the invocation. Mayor Borden delivered the address of welcome, to which W. G. Moore responded. President J. D. Griffith was introduced and made a few remarks.

The Recording Secretary, B. C. Hyde, made a lengthy report on the reorganization plan of the American Medical Association, which requested the following:



Woodson Moss

"1. The federation of all the state societies in the American Medical Association.

"2. That all associations adopt a uniform plan of organization as regards fundamental principles.

"3. That each association have two distinct branches, legislative and scientific.

"4. That the legislative branch shall be as small as is compatible with representation from all county societies in the state or territory, and to be composed of delegates elected by the county or district societies.

"5. That the scientific branch be composed of and open to all members of county or district societies."

This was referred to a Committee on Reorganization, and when Jabez N. Jackson reported for that committee (including a revision of the Constitution and By-Laws), it was adopted after the clearing up of misunderstandings.

Roswell Park, of Buffalo, New York, read a paper on "Some Aspects of the Cancer Problem." This seems to be the first formal presentation before the Association by an invited guest from another state.



E. J. Goodwin

There were several reports and resolutions of minor importance.

Frank J. Lutz was elected delegate to the American Medical Association, with Charles H. Wallace as alternate.

Excelsior Springs was selected for the place of the next meeting.

The following officers were elected: President, Woodson Moss, Columbia; Vice Presidents, M. P. Overholser, Harrisonville; Barton Pitts, St. Joseph; A. C. Robinson, St. Louis; Frank DeVilbiss, Spring Garden; V. Q. Bonham, New Franklin; Recording Secretary, C. M. Nicholson, St. Louis; Assistant Recording Secretary, E. J. Goodwin, St. Louis; Treasurer, J. Franklin Welch, Salisbury.

1903

The meeting was called to order by T. N. Bogart, chairman of the Committee on Arrangements, in the Music Hall, at Excelsior Springs, on April 21,

1903. The Rev. T. M. S. Kenney delivered the invocation. The Hon. Elmer L. Riley delivered an address of welcome, and the President, Woodson Moss, was introduced.

The reports of officers and committees were more comprehensive than formerly. The Constitution and By-Laws as prepared by the Committee of the American Medical Association was presented by F. J. Lutz. It was adopted unanimously, and the name of the association was changed to Missouri State Medical Association. The dues were $2.00 a year. On invitation, George H. Simmons of the American Medical Association congratulated the Association on its work.



William G. Moore

A Council of sixteen was created. An improvised House of Delegates representing thirty-three county and district societies was formed. It functioned quite efficiently under the circumstances.

The following officers were elected: President, Wm. G. Moore, St. Louis; Vice Presidents, O. B. Campbell, St. Joseph; T. N. Bogart, Excelsior Springs; H. B. Cole, Sedalia; J. M. Robinson, Latham; F. B. Hiller, Kahoka; Secretary, C. M. Nicholson, St. Louis; Assistant Secretary, E. J. Goodwin, St. Louis; Treasurer, J. Franklin Welch, Salisbury; Councilors, W. B. Sisson, Kahoka; Robert Halley, Brookfield; E. H. Miller, Fayetteville; C. H. Wallace, St. Joseph; L. W. Dallas, Hunnewell; E. S. Cave, Mexico; W. B. Dorsett, St. Louis; F. J. Lutz, St. Louis; B. M. Hypes, St. Louis; J. J. Norwine, Poplar Bluff; W. S. Allee, Olean; W. J. Ferguson, Sedalia; J. N. Jackson, Kansas City; A. R. Snyder, Joplin; R. L. Johnson, Rolla.

St. Louis was selected for the 1904 meeting place.

1904

The Association met in the Y. M. C. A. Building, at the Northeast corner of Grand and Franklin Avenues, in St. Louis, on May 17, 1904. The meeting was opened by President W. G. Moore. Mr. Charles P. Hornsby, chairman of the City Council, delivered an address of welcome. Only morning sessions were held to permit the members to spend their afternoons and evenings at the World's Fair (Louisiana Purchase Exposition, where a reception was held on Friday evening). The scientific program was unusually good, the best part of it being a splendid symposium on "Appendicitis." The President's address was a timely and well-constructed oration entitled "The Possibilities of Medical Organization." Wm. M. McPheeters, who introduced the resolution to the St. Louis Medical Society which resulted in the formation of the Association and who became its second president, addressed the meeting.

The House of Delegates established The Journal of the Missouri State Medical Association, the first number of which appeared in July of that year, with C. M. Nicholson as Editor and the publication office at 534 N. Vandeventer Ave., St. Louis.

Excelsior Springs was chosen as the next place of meeting. A resolution was adopted recommending the systematic examination of the hearing and vision of school children.



Jabez N. Jackson

This was the largest meeting up to that time, 507 members having attended.

The following officers were elected: President, Jabez N. Jackson, Kansas City; First Vice President, S. M. Brown, Monroe City; Second Vice President, H. W. Latham, Latham; Third Vice President, T. E. Potter, St. Joseph; Fourth Vice President, W. S. Thompson, Armstrong; Fifth Vice President, J. C. Rogers, Kansas City; Secretary, C. M. Nicholson, St. Louis; Assistant Secretary, E. J. Goodwin, St. Louis; Treasurer, J. Franklin Welch, Salisbury.

The following Councilors served for the next year: 1st District, F. B. Hiller, Kahoka; 2nd District, J. D. Brummall, Salisbury; 3rd District, E. H. Miller, Fayetteville; 4th District, C. H. Wallace, St. Joseph; 5th District, L. W. Dallas, Hunnewell; 6th District, Woodson Moss, Columbia; 7th District, W. B. Dorsett, St. Louis; 8th District, F. J. Lutz, St. Louis, Chairman; 9th District, B. M. Hypes, St. Louis; 10th District, J. J. Norwine, Poplar Bluff; 11th District, W. S. Allee, Olean; 12th District, R. D. Haire, Clinton; 13th District, M. P. Overholser, Harrisonville; 14th District, A. R. Snyder, Joplin; 15th District ———; 16th District, L. L. Johnson, Rolla.

1905

The House of Delegates was called to order in the Music Hall, at Excelsior Springs, on May 16, 1905, by the President, Jabez N. Jackson, at 10:45 a. m.

Among the resolutions adopted was one asking school boards to appoint medical examiners for the school children and advocating the establishment of a state sanitarium for consumptives.



D. C. Gore

Jefferson City was chosen for the next place of meeting.

E. J. Goodwin was elected Associate Editor of The Journal. This was the beginning of the brilliant career as a medical journalist for Edwin J. Goodwin, of whom there will be more in this narrative.

The judicial council was reorganized and increased to eighteen members.

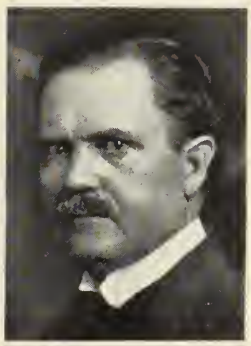
The following officers were elected: President, D. C. Gore, Marshall; Vice Presidents, C. D. Avery, Troy; J. P. Burke, California; F. A. Glasgow, St. Louis; T. F. Lockwood, Butler; E. Lowrey, Excelsior Springs; Secretary,

C. M. Nicholson, St. Louis; Assistant Secretary, E. J. Goodwin, St. Louis; Treasurer, J. Franklin Welch, Salisbury.

The following Councilors were to serve for the next year: 1st District, F. B. Hiller, Kahoka; 2nd District, J. D. Brummall, Salisbury; 3rd District, E. H. Miller, Fayetteville; 4th District, C. H. Wallace, St. Joseph; 5th District, L. W. Dallas, Hunnewell; 6th District, Woodson Moss, Columbia; 7th District, W. B. Dorsett, St. Louis; 8th District, F. J. Lutz, St. Louis; 9th District, B. M. Hypes, St. Louis; 10th District, J. J. Norwine, Poplar Bluff; 11th District, J. D. Porterfield, Jr., Cape Girardeau; 12th District, W. S. Allee, Olean; 13th District, R. D. Haire, Clinton; 14th District, M. P. Overholser, Harrisonville; 15th District, A. R. Snyder, Joplin; 16th District, R. L. Johnson, Rolla; 17th District, J. E. Tefft, Springfield; 18th District, H. C. Shuttee, West Plains.

1906

The Association met in the State Capitol, at Jefferson City, on May 15 to 17, 1906. Governor Joseph W. Folk delivered an address of welcome. The presidential address of D. C. Gore was a long and eloquent piece of oratory. W. G. Moore, of St. Louis, presented the oration on "Medicine," and C. H. Wallace, of St. Joseph, delivered the address on "The Triumphs of American Surgery."



C. H. Wallace

The report of the Committee on Public Health and Legislation urged the establishment of county boards of health throughout the state, the proper care for the insane and the amendment of the law that permits the filing of malpractice suits within five years to reduce that period to one year.

The Judicial Council elected E. J. Goodwin as Editor of THE JOURNAL and increased the number of Councilor Districts to twenty-six.

The scientific program consisted of a medical section and a surgical section, each with a chairman, a vice chairman and a secretary.

The following officers were elected: President, C. H. Wallace, St. Joseph; Vice Presidents, F. W. Allen, Callao; W. G. Cowan, Sedalia; C. J. Orr, St. Louis; E. H. Thrailkill, Kansas City; H. L. Reid, Charleston; General Secretary, C. M. Nicholson, St. Louis; Assistant Secretary, Gail Allee, Lamar; Assistant Secretary, H. A. McDonald, Pisgah; Treasurer, J. Franklin Welch, Salisbury.

Councilors for the next year were: 1st District, E. E. Parrish, Memphis; 2nd District, H. J. Jurgens, Edina; 3rd District, J. D. Brummall, Salisbury; 4th District, C. R. Buren, Princeton; 5th District, E. H. Miller, Liberty; 6th District, W. E. McKinley, Denver; 7th District, W. T. Elam, St. Joseph; 8th District, L. W. Dallas, Hunnewell; 9th District, C. W. Reagan, Macon; 10th District, Woodson Moss, Columbia; 11th District, W. B. Dorsett, St. Louis; 12th District, F. J. Lutz, St. Louis; 13th District, B. M. Hypes, St. Louis; 14th District, Wm. F. Kuhn, Farmington; 15th District, J. J. Norwine, Poplar Bluff; 16th District, J. D. Porterfield, Jr., Cape Girardeau; 17th District, W. S. Allee, Olean; 18th District, G. Ettmueller, Jefferson City; 19th District, R. D. Haire, Clinton; 20th District, C. T. Ryland, Lexington; 21st District, M. P. Overholser, Harrisonville; 22nd District, J. R. Buchanan, Nevada; 23rd District, A. R. Snyder, Joplin; 24th District, R. L. Johnson, Rolla; 25th District, T. A. Coffelt, Springfield; 26th District, H. C. Shuttee, West Plains.

It was decided to hold the next meeting in Jefferson City again.

1907

The meeting was held in the State Capitol, at Jefferson City, on May 14 to 16, 1907, with President C. H. Wallace, of St. Joseph, presiding. As in the previous year, Governor Joseph W. Folk delivered an address of welcome, and W. B. Outten of St. Louis responded.



W. S. Allee

Fifteen of the twenty-one living Past President were on the platform and each responded to the call for an extemporaneous talk. There was considerable routine work by the House of Delegates and the Judicial Council was increased to twenty-nine members.

The scientific programs of both the medical and surgical sections were of merit.

Springfield was selected for the next place of meeting.

The election of officers resulted as follows: President, W. S. Allee, Olean; First Vice President, Thomas B. Cook, Rayville; Second Vice President, A. H. Vandivert, Bethany; Third Vice President, Charles Hough, Jefferson City; Fourth Vice President, J. P. Dunnigan, Holliday; Fifth Vice President, O. F. Pile, Memphis; Secretary, A. W. McAlester, Jr., Kansas City; Treasurer, J. Franklin Welch, Salisbury.

The reorganized Judicial Council consisted of the following: 1st District, C. L. Evans, Oregon; 2nd District, W. T. Elam, St. Joseph; 3rd District, E. W. Whitely, Albany; 4th District, C. R. Buren, Princeton; 5th District, E. E. Parrish, Memphis; 6th District, H. Jurgens, Edina; 7th District, L. W. Dallas, Hunnewell; 8th District, W. B. Dorsett, St. Louis; 9th District, Woodson Moss, Columbia; 10th District, C. W. Reagan, Macon; 11th District, J. D. Brummall, Salisbury; 12th District, E. H. Miller, Liberty; 13th District, N. P. Wood, Independence; 14th District, C. T. Ryland, Lexington; 15th District, M. P. Overholser, Harrisonville; 16th District, J. R. Buchanan, Nevada; 17th District, R. D. Haire, Clinton; 18th District, Frank DeVilbiss, Eugene; 19th District, G. Ettmueller, Jefferson City; 20th District, F. J. Lutz, St. Louis, Chairman; 21st District, B. M. Hypes, St. Louis; 22nd District, J. D. Porterfield, Jr., Cape Girardeau; 23rd District, D. R. Corbin, Bloomfield; 24th District, J. J. Norwine, Poplar Bluff; 25th District, F. L. Keith, Flat River; 26th District, R. L. Johnson, Rolla; 27th District, H. C. Shuttee, West Plains; 28th District, T. A. Coffelt, Springfield; 29th District, A. R. Snyder, Joplin.

E. J. GOODWIN, *Secretary.*

1908

The House of Delegates was called to order in the Colonial Hotel, Springfield, on May 19, 1908,

at 9:40 a. m., by the President, W. S. Allee. Quite a number of amendments to the By-Laws were adopted and the Defense Committee was created. F. J. Lutz, Walter B. Dorsett and Joseph Grindon were appointed members of that committee.

The General Sessions were held in the Baldwin Theater. The Reverend Mr. Bacon pronounced the invocation. T. A. Coffelt, Springfield, read the address of welcome to which W. G. Moore responded with his usual eloquence.



A. R. Kieffer

The oration on medicine was read by J. H. Duncan and that on surgery by Herman E. Pearse. The addresses were well received and highly appreciated by the audience, in which there were many citizens of Springfield. The scientific program in both the medical and surgical sections was exceptionally good. The symposium on tuberculosis was of especial interest and many members participated actively in the discussion.

Jefferson City was chosen for the place of the next meeting.

The following officers were elected: President, A. R. Kieffer, St. Louis; Vice Presidents, D. B. Farnsworth, Springfield; W. J. Frick, Kansas City; J. B. Norman, California; C. H. Dixon, Holliday; M. A. Smith, Gallatin; Secretary, A. W. McAlester, Jr., Kansas City; Assistant Secretaries, Willard Bartlett, St. Louis, W. R. Patterson, Tipton, and T. McLemore, Nevada; Treasurer, J. Franklin Welch, Salisbury.

The Councilors for the next year were: 1st District, C. L. Evans, Oregon; 2nd District, W. T. Elam, St. Joseph; 3rd District, G. W. Whitely, Albany; 4th District, C. R. Buren, Princeton; 5th District, E. E. Parrish, Memphis; 6th District, H. Jurgens, Edina; 7th District, L. W. Dallas, Hunnewell; 8th District, W. B. Dorsett, St. Louis; 9th District, A. R. McComas, Sturgeon; 10th District, C. W. Reagan, Macon; 11th District, J. D. Brummall, Salisbury; 12th District, E. H. Miller, Liberty; 13th District, F. E. Murphy, Kansas City; 14th District, C. T. Ryland, Lexington; 15th District, M. P. Overholser, Harrisonville; 16th District, J. R. Buchanan, Nevada; 17th District, R. D. Haire, Clinton; 18th District, Frank DeVilbiss, Eugene; 19th District, G. Ettmueller, Jefferson City; 20th District, F. J. Lutz, St. Louis, Chairman; 21st District, G. M. Rutledge, Ste. Genevieve; 22nd District, F. R. Newberry, Fredericktown; 23rd District, T. C. Allen, Bernie; 24th District, T. W. Cotton, Van Buren; 25th District, J. Frank Harrison, Farmington; 26th District, R. L. Johnson, Rolla; 27th District, H. C. Shuttee, West Plains; 28th District, T. A. Coffelt, Springfield; 29th District, A. R. Snyder, Joplin.

E. J. Goodwin, *Secretary.*

1909

The meetings were held in the State Capitol, at Jefferson City, May 18 to 20, 1909. On the evening of the first day the President, A. R. Kieffer, delivered his address. R. H. Goodier presented the oration on medicine and F. J. Lutz that on surgery. J. N. McCormack, of Kentucky, National Organizer for the American Medical Association, addressed a public meeting in the Hall of the House of Representatives. Governor Herbert S. Hadley presided at this meeting. The new section on diseases of the eye, ear, nose and throat held its first meeting.

Legal defense was made a permanent privilege of membership by amending the By-Laws making the Defense Committee one of the Association's standing committees. The report of the Committee on Public Policy and Legislation was particularly good and showed actual successes in securing new laws and in amending old ones. Much routine business was transacted by the House of Delegates. The scientific program was better than usual, with quite active discussions.

Hannibal was chosen as the place for the next meeting.

The following officers were elected: President, Tinsley Brown, Hamilton; Vice Presidents, J. M. Bell, St. Joseph; J. A. Harris, Mount Vernon; H. G. Shobe, Paris; B. W. Hays, Jackson; J. L. Thorpe, Jefferson City; Secretary, A. W. McAlester, Jr., Kansas City; Treasurer, J. Franklin Welch, Salisbury.



Tinsley Brown

The following Councilors served during the next year: 1st District, C. L. Evans, Oregon; 2nd District, W. T. Elam, St. Joseph; 3rd District, G. W. Whitely, Albany; 4th District, C. R. Buren, Princeton; 5th District, E. E. Parrish, Memphis; 6th District, H. Jurgens, Edina; 7th District, R. H. Goodier, Hannibal; 8th District, W. B. Dorsett, St. Louis; 9th District, A. R. McComas, Sturgeon; 10th District, C. W. Reagan, Macon; 11th District, J. D. Brummall, Salisbury; 12th District, E. H. Miller, Liberty; 13th District, F. E. Murphy, Kansas City; 14th District, C. T. Ryland, Lexington; 15th District, J. A. Anderson, Warrensburg; 16th District, J. R. Buchanan, Nevada; 17th District, R. D. Haire, Clinton; 18th District, Frank DeVilbiss, Eugene; 19th District, G. Ettmueller, Jefferson City; 20th District, F. J. Lutz, St. Louis, Chairman; 21st District, G. M. Rutledge, Ste. Genevieve; 22nd District, W. S. Hutton, Fornfelt; 23rd District, T. C. Allen, Bernie; 24th District, T. W. Cotton, Van Buren; 25th District, C. R. Fleming, Farmington; 26th District, W. H. Breuer, Rolla; 27th District, H. C. Shuttee, West Plains; 28th District, A. H. Madry, Aurora; 29th District, R. L. Neff, Joplin.

E. J. Goodwin, *Secretary.*

1910

The meeting was held in the Assembly Hall of the Mathew-Columbus Building and in the Commercial Club, at Hannibal, May 3, 4 and 5, 1910. The President's address by Tinsley Brown, entitled "The Relation of the Physician to the Public," was appropriate. It was direct and well constructed for an open meeting and not so long as that of most of the presidents.

The House of Delegates devoted considerable time to medical education and licensure. There was considerable difference as to what the best preliminary requirement should be, and how the

examinations of the licensing boards should be conducted. Yet, several progressive resolutions were adopted.

It was decided to hold the next meeting in Jefferson City. Hannibal was not readily accessible from all parts of the state, not many physicians drove automobiles forty years ago and the road improvement program in Missouri had hardly started, so the attendance was light. Only fifteen of the twenty-nine Councilors were present.



Herman E. Pearse

The election of officers resulted as follows: President, Herman E. Pearse, Kansas City; First Vice President, W. T. Lindley, Hamilton; Second Vice President, George Homan, St. Louis; Third Vice President, J. Y. Hume, Armstrong; Fourth Vice President, W. A. Camp, Springfield; Fifth Vice President, John Ashley, Bloomfield; Secretary and Editor of THE JOURNAL, E. J. Goodwin; Treasurer, J. Franklin Welch, Salisbury.

These Councilors served for the next year: 1st District, C. L. Evans, Oregon; 2nd District, L. A. Todd, St. Joseph; 3rd District, G. W. Whitely, Albany; 4th District, Samuel Sheldon, Trenton; 5th District, E. E. Parrish, Memphis; 6th District, James Hanks, Brashear; 7th District, J. D. Smith, Shelbina; 8th District, W. B. Dorsett, St. Louis; 9th District, A. R. McComas, Sturgeon; 10th District, C. W. Reagan, Macon; 11th District, J. D. Brummall, Salisbury; 12th District, C. M. McConkey, Lathrop; 13th District, F. E. Murphy, Kansas City; 14th District, C. T. Ryland, Lexington; 15th District, J. A. Anderson, Warrensburg; 16th District, J. R. Buchanan, Nevada; 17th District, S. G. Kelly, Sedalia; 18th District, Frank DeVilbiss, Tipton; 19th District, G. Ettmueller, Jefferson City; 20th District, F. J. Lutz, St. Louis, Chairman; 21st District, G. M. Rutledge, Ste. Genevieve; 22nd District, W. S. Hutton, Fornfelt; 23rd District, T. C. Allen, Bernie; 24th District, T. W. Cotton, Van Buren; 25th District, C. R. Fleming, Farmington; 26th District, W. H. Breuer, St. James; 27th District, H. C. Shuttee, West Plains; 28th District, A. H. Madry, Aurora; 29th District, R. L. Neff, Joplin.

E. J. GOODWIN, *Secretary.*

1911

At the 1910 meeting it had been decided to hold the 1911 meeting in Jefferson City. This plan was nullified by a fire on February 5, 1911, which completely destroyed the state capitol at Jefferson City. Thus the only place of that locality where the Annual Meeting might be held was removed from the scene, so the place of the 1911 meeting was properly placed in Kansas City and the attendance was better than at any earlier meeting. Five hundred and sixty member physicians registered.

The House of Delegates was called to order at 9 a. m., on May 16, 1911, by President Herman E. Pearse. Mayor Brown welcomed the Association to Kansas City, complimenting the medical profession for its accomplishments.

The General Sessions were held in Casino Hall. Among the resolutions adopted was one advocating the compulsory vaccination of school children and one urging the reestablishing of the third and fourth years of the medical school of the University of Missouri.

A. R. Craig, Assistant Secretary of the American Medical Association, attended this meeting and told of a plan that was in contemplation whereby all members of state associations would be members of the American Medical Association.

The scientific program was better than usual. Among the papers was one by Greenfield Sluder, of St. Louis, on "Tonsillectomy." In it the author described his operation which became the method of choice by many otolaryngologists for several decades.

Sedalia was voted as the place for the next meeting.

The following officers were elected: President, R. H. Goodier, Hannibal; Vice Presidents, W. J. Ferguson, Sedalia; J. H. Amerland, St. Louis; C. H. Lester, Kansas City; G. W. Vinyard, Jackson; J. M. Stone, Laredo; Secretary, E. J. Goodwin, St. Louis; Treasurer, J. Franklin Welch, Salisbury.

The following Councilors served for the next year: 1st District, C. L. Evans, Oregon; 2nd District, L. A. Todd, St. Joseph; 3rd District, G. W. Whitely, Albany; 4th District, Samuel Sheldon, Trenton; 5th District, E. E. Parrish, Memphis; 6th District, James Hanks, Brashear; 7th District, J. D. Smith, Shelbina; 8th District, W. B. Dorsett, St. Louis; 9th District, A. R. McComas, Sturgeon; 10th District, C. W. Reagan, Macon; 11th District, C. H. Dixon, Holliday; 12th District, C. M. McConkey, Lathrop; 13th District, F. E. Murphy, Kansas City; 14th District, C. T. Ryland, Lexington; 15th District, J. A. Anderson, Warrensburg; 16th District, E. N. Chastain, Butler; 17th District, S. G. Kelly, Sedalia; 18th District, Frank DeVilbiss, Tipton; 19th District, W. A. Clark, Jefferson City; 20th District, F. J. Lutz, St. Louis, Chairman; 21st District, G. M. Rutledge, Ste. Genevieve; 22nd District, W. S. Hutton, Fornfelt; 23rd District, T. C. Allen, Bernie; 24th District, T. W. Cotton, Van Buren; 25th District, T. T. O'Dell, Ellington; 26th District, W. H. Breuer, St. James; 27th District, Lee Welch, Mountain View; 28th District, A. H. Madry, Aurora; 29th District, R. L. Neff, Joplin.



R. H. Goodier

E. J. GOODWIN, *Secretary.*

Governor Herbert S. Hadley addressed the Judicial Council in regard to cooperative action between the Tuberculosis Association and the State Association.

1912

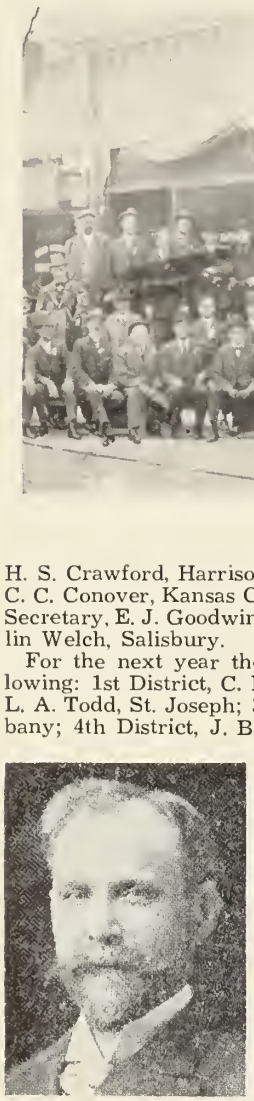
The meeting of the House of Delegates was called to order by President Robert H. Goodier in the Pettis County Court House, in Sedalia, on May 21, 1912, at 9:00 a. m. The Hon. W. G. Lynch, of Sedalia, delivered a short and most appropriate address of welcome, to which W. G. Moore responded with a speech of eloquent brevity.

Much time was devoted to contract practice, fee splitting, medical education and public health. The scientific program was relatively short, which provided more time for discussion in which the members participated most actively.

It was decided to hold the next meeting in St. Louis.

The election resulted as follows after a lively discussion of the constitutional qualification of candidates for the presidency; President, Robert M. Funkhouser, St. Louis; Vice Presidents, J. S. Wallace, Brunswick; H. S. Crawford, Harrisonville; J. S. Baskett, Hannibal; C. C. Conover, Kansas City; J. H. Timberman, Marston; Secretary, E. J. Goodwin, St. Louis; Treasurer, J. Franklin Welch, Salisbury.

For the next year the Council consisted of the following: 1st District, C. L. Evans, Oregon; 2nd District, L. A. Todd, St. Joseph; 3rd District, G. W. Whitely, Albany; 4th District, J. B. Wright, Trenton; 5th District, E. E. Parrish, Memphis; 6th District, James Hanks, Brashear; 7th District, J. D. Smith, Shelbina; 8th District, L. W. Cape, Maplewood; 9th District, A. R. McComas, Sturgeon; 10th District, C. W. Reagan, Macon; 11th District, C. H. Dixon, Holliday; 12th District, C. M. McConkey, Lathrop; 13th District, F. E. Murphy, Kansas City; 14th District, C. T. Ryland, Lexington; 15th District, J. A. Anderson, Warrensburg; 16th District, E. W. Chastain, Butler; 17th District, S. G. Kelly, Sedalia; 18th District, Frank DeVilbiss, Tipton; 19th District, W. A. Clark, Jefferson City; 20th District, F. J. Lutz, St. Louis, Chairman; 21st District, G. M. Rutledge, Ste. Genevieve; 22nd District, G. S. Cannon, Fornfelt; 23rd District, T. C. Allen, Bernie; 24th District, T. W. Cotton, Van Buren; 25th District, T. T. O'Dell, Ellington; 26th District, W. H. Breuer, St. James; 27th District, J. H. Elliott, West Plains; 28th District, A. H. Madry, Aurora; 29th District, R. L. Neff, Joplin.



Robert M. Funkhouser

E. J. Goodwin, *Secretary.*

1913

The meeting of the House of Delegates was called to order in the auditorium of the St. Louis Medical Society, 3525 Pine Street, St. Louis, by President Robert M. Funkhouser, at 10:15 a. m. on May 13, 1913. A Vice President presided while the President read his message. Again there was a resolution on contract practice and one on fee splitting. Then came the usual routine business which varies in detail but not in substance from year to year.

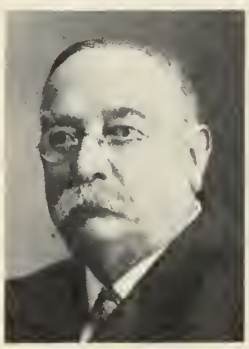


Members of the Missouri State Medical Association

The Committee of Defense had become an indispensable institution, and its report revealed that the problem was being better understood as both the committee and the membership gained by study and experience. The scientific program was long and varied.

St. Joseph was chosen for the next meeting place.

The following officers were elected: President, E. H. Miller, Liberty; Vice Presidents, C. H. Neilson, St. Louis; T. J. Downing, New London; M. B. Austin, Brunswick; G. D. Allee, Lamar; A. E. Hertzler, Kansas City; Secretary, E. J. Goodwin, St. Louis; Treasurer, J. Franklin Welch, Salisbury.



E. H. Miller

The following Councilors served during the next year: 1st District, C. L. Evans, Oregon; 2nd District, L. A. Todd, St. Joseph; 3rd District, G. W. Whitely, Albany; 4th District, J. B. Wright, Trenton; 5th District, E. E. Parrish, Memphis; 6th District, A. C. Crank, Canton; 7th District, J. D. Smith, Shelbina; 8th District, L. W. Cape, Maplewood; 9th District, A. R. McComas, Sturgeon; 10th District, C. H. Dixon, Holliday; 11th District, J. D. Brummall, Salisbury; 12th District, C. M. McConkey, Lathrop; 13th District, F. E. Murphy, Kansas City; 14th District, C. T. Ryland, Lexington; 15th District, James I. Anderson, Warrensburg; 16th District, E. N. Chastain, Butler; 17th District, S. G.

Kelly, Sedalia; 18th District, Frank DeVilbiss, Tipton; 19th District, W. A. Clark, Jefferson City; 20th District, F. J. Lutz, St. Louis, Chairman; 21st District, G. M. Rutledge, Ste. Genevieve; 22nd District, G. S. Cannon, Fornfelt; 23rd District, T. C. Allen, Bernie; 24th District, T. W. Cotton, Van Buren; 25th District, T. T. O'Dell, Ellington; 26th District, W. H. Breuer, St. James; 27th District, J. H. Elliott, West Plains; 28th District; A. H. Madry, Aurora; 29th District, R. L. Neff, Joplin.

E. J. GOODWIN, *Secretary.*

1914

The House of Delegates was called to order in the Carnegie Library, at Joplin, by President E. H. Miller, on May 12, 1914, at 9:30 a. m. The Committee on Revision of the Constitution and By-Laws presented amendments governing the Defense Committee. These were adopted as was another defining members as those "of the component County Societies as shall be approved by this Association." The House of Delegates was empowered to elect the President. There were a number of other amendments of minor importance which occupied the House during one morning session and two afternoon sessions. Medical expert testimony was, as it is still, a good topic for discussion.

The General Sessions were held in the New Joplin Theater where the Hon. Hugh McIndoe, Mayor of Joplin, delivered an address of welcome and turned the keys of the city over to the President on the evening of May 12. A. W. McAlester, Columbia, responded to this address. The scientific program was good. Among the papers was one on the use of the electrocardiograph by G. Canby Robinson, then of St. Louis, now of Baltimore, Maryland. A symposium on heart disease attracted wide attention and was discussed by a number of prominent cardiologists of the state.

On the evening of May 13 the members of the Jasper County Medical Society presented George Bernard Shaw's "The Doctor's Dilemma." It was attended by about 1,000 persons and was well received. Among the members of the cast were Logan Clendening and E. H. Skinner.

There was another excellent report of the Council on Medical Education by George Dock. (We are pleased to report that Dr. Dock is now in his ninetieth year and living in Altadena, California.)

St. Joseph was selected for the next meeting.

The election resulted as follows: President, H. C. Shuttee, West Plains; Vice Presidents, J. A. McComb, Lebanon; S. O. Cuppaidge, Moberly; W. G. Estill, Lawson; T. A. Coffelt, Springfield; W. A. Clark, Jefferson City; Secretary, E. J. Goodwin, St. Louis; Treasurer, J. Franklin Welch, Salisbury.



Attending the Joplin Session, May 12 to 14, 1914

Councilors: 1st District, C. L. Evans, Oregon; 2nd District, O. C. Gebhart, St. Joseph; 3rd District, G. W. Whitely, Albany; 4th District, J. C. Bridges, Kahoka; 5th District, E. E. Parrish, Memphis; 6th District, A. C. Crank, Canton; 7th District, J. H. Smith, Shelbina; 8th District, L. W. Cape, Maplewood; 9th District, A. R. McComas, Sturgeon; 10th District, C. H. Dixon, Holliday; 11th District, G. W. Hawkins, Salisbury; 12th District, Spence Redman, Platte City; 13th District, Franklin E. Murphy, Kansas City; 14th District, C. T. Ryland, Lexington; 15th District, H. S. Crawford, Harrisonville; 16th District, E. N. Chastain, Butler; 17th District, W. J. Ferguson, Sedalia; 18th District, Frank DeVilbiss, Tipton; 19th District, S. V. Bedford, Jefferson City; 20th District, F. J. Lutz, St. Louis, Chairman; 21st District, G. M. Rutledge, Ste. Genevieve; 22nd District, G. S. Cannon, Fornfelt; 23rd District, J. H. Timberman, Marston; 24th District, T. W. Cotton, Van Buren; 25th District, T. T. O'Dell, Ellington; 26th District, W. H. Breuer, St. James; 27th District, J. H. Elliott, West Plains; 28th District, T. O. Klingner, Springfield; 29th District, R. L. Wills, Neosho.



H. C. Shuttee

E. J. GOODWIN, *Secretary.*

1915

The House of Delegates was called to order at

9:40 a. m., on May 10, 1915, in the Scottish Rite Cathedral, St. Joseph, by President H. C. Shuttee. The By-Laws were amended raising the dues from $2.00 to $3.00 a year, $1.00 to be credited to the subscription of The Journal for one year.

A. R. Craig, Secretary of the American Medical Association, attended and made an interesting and instructive address. A sinking fund of $1,000 was set aside. A strong resolution against fee splitting was adopted. The scientific program was quite satisfactory.

Excelsior Springs was selected as the place for the next meeting.

The following officers were elected: President, C. R. Woodson, St. Joseph; Vice Presidents, Guy B. Mitchell, Branson; Chambers B. Clapp, Moberly; Alfred E. Monroe, Sedalia; Byron B. Porter, Lancaster; Rush E. Castelaw, Kansas City; Secretary, E. J. Goodwin, St. Louis; Treasurer, J. Franklin Welch, Salisbury.



C. R. Woodson

The following were Councilors for the next year: 1st District, C. L. Evans, Oregon; 2nd District, O. L. Gebhart, St. Joseph; 3rd District, George W. Whitely, Albany; 4th District, James C. Bridges, Kahoka; 5th District, E. E. Parrish, Memphis; 6th District, A. C. Crank, Canton; 7th District, Jacob D. Smith, Shelbina; 8th District, L. W. Cape, Maplewood; 9th District, A. R. McComas, Sturgeon; 10th District, C. H. Dixon, Holliday; 11th District, George W. Hawkins, Salisbury; 12th District, Spence Redman, Platte City; 13th District, Franklin E. Murphy, Kansas City; 14th District, C. T. Ryland, Lexington; 15th District, H. S. Crawford, Harrisonville; 16th District, E. N. Chastain, Butler; 17th District, Wilson J. Ferguson, Sedalia; 18th District, Frank DeVilbiss, Tipton; 19th District, S. V. Bedford, Jefferson City; 20th District, F. J. Lutz, St. Louis, Chairman; 21st District, G. M. Rutledge, Ste. Genevieve; 22nd District, G. S. Cannon, Fornfelt; 23rd District, J. H. Timberman, Marston; 24th District, T. W. Cotton, Van Buren; 25th District, T. T. O'Dell, Ellington; 26th District, W. H. Breuer, St. James; 27th District, J. H. Elliott, West Plains; 28th District, T. O. Klingner, Springfield; 29th District, R. L. Wills, Neosho.

E. J. Goodwin, *Secretary.*

After being elected President, C. R. Woodson rose at the General Session on the morning of May 12 and said: "Gentlemen of the Association: My attention has been called to the fact that there is an objection to a one-line advertisement that I have in the paper, 'Dr. Woodson, Nervous and Mental Diseases, 220 N. 7th'! If this card is objectionable to any individual member of this society, I am perfectly willing to take that card out of the paper, and if I serve as President of this society I will try to be as ethical as any man. I did not think it was unethical when I put it there but as before stated, if it is objectionable to any individual I will cheerfully and willingly take it out." On motion this matter was referred to the Judicial Council.

The latter Council met on May 19, 1915, with only thirteen Councilors present and decided unfavorably to Dr. Woodson. He then entered a petition for a writ of mandamus to the Circuit Court of Buchanan County against the Association and each one of the twenty-nine Councilors individually charging the lack of a quorum. So the Judicial Council met again on June 8 with a quorum of twenty-five and exonerated Dr. Woodson, who then served his term as President. He conducted the office with dignity, respect and efficiency and continued as one of the most honored and useful members of the Association during the rest of his years on earth.

E. J. Goodwin, *Secretary.*

1916

The House of Delegates was called to order by President C. R. Woodson in the Elms Hotel, Excelsior Springs, on May 8, 1916, at 10:00 a. m. Many amendments to the By-Laws were proposed and a few of these adopted. The name of the "Judicial Council" was changed to "Council" and instead of that body meeting only during the Annual Meeting except for the one emergency, the By-Laws now provided for "other times as necessity may require." The scientific program was interesting and there was a memorial meeting on May 9 commemorative of the late Frank J. Lutz and Walter B. Dorsett as well as other members deceased during the year.



J. Franklin Welch

Springfield was chosen for the place of the next annual meeting.

The following officers were elected: President, J. Franklin Welch, Salisbury; Vice Presidents, T. B. M. Craig, Nevada; Reuben Barney, Chillicothe; Roger W. Gay, Ironton; Thomas Chowning, Hannibal; T. N. Bogart, Excelsior Springs; Secretary, E. J. Goodwin, St. Louis; Treasurer, W. S. Allee, Olean.

For the next year the Council consisted of the following: 1st District, E. L. Crowson, Pickering; 2nd District, O. C. Gebhart, St. Joseph; 3rd District, G. W. Whitely, Albany; 4th District, J. B. Wright, Trenton; 5th District, J. R. Bridges, Kahoka; 6th District, A. C. Crank, Canton; 7th District, J. D. Smith, Shelbina; 8th District, L. W. Cape, Maplewood; 9th District, A. R. McComas, Sturgeon, Chairman; 10th District, Don A. Barnhart, Huntsville; 11th District, G. W. Hawkins, Salisbury; 12th District, Spence Redman, Platte City; 13th District, F. E. Murphy, Kansas City; 14th District, C. T. Ryland, Lexington; 15th District, H. S. Crawford, Harrisonville; 16th District, E. W. Chastain, Butler; 17th District, W. J. Ferguson, Sedalia; 18th District, Frank DeVilbiss, Tipton; 19th District, S. V. Bedford, Jefferson City; 20th District, A. H. Hamel, St. Louis; 21st District, G. M. Rutledge, Ste. Genevieve; 22nd District, G. S. Cannon, Fornfelt; 23rd District, J. H. Timberman, Marston; 24th District, T. W. Cotton, Van Buren; 25th District, O. A. Smith, Farmington; 26th District, W. H. Breuer, St. James; 27th District, J. H. Elliott, West Plains; 28th District, T. O. Klingner, Springfield; 29th District, R. L. Wills, Neosho.

E. J. Goodwin, *Secretary.*

1917

The House of Delegates was called to order in the Colonial Hotel, Springfield, by President J. Franklin Welch, at 9:35 a. m., on Monday, May 14, 1917. In his message to the House, Dr. Welch called attention to the death of the Treasurer, W. S. Allee, and to the appointment of Gail D. Allee to succeed his father. Among his recommendations was a "President-Elect who would have time to familiarize himself with the duties of the President before assuming that office." There were several resolutions made necessary by World War I into which this country had entered actively during the previous month.

The General Sessions were held in the Landers Theater, and the scientific program was interesting. Most of the papers were freely discussed.

Jefferson City was chosen for the place of the next meeting.

The officers for the following year were: President, Robert E. Schlueter, St. Louis; Vice Presidents, J. P. Henderson, Kansas City; H. A. Lowe, Springfield; F. B. Long, Sedalia; W. A. Clark, Jefferson City; T. W. Cotton, Van Buren; Secretary-Editor, E. J. Goodwin, St. Louis; Treasurer, Gail D. Allee, Lamar.



Robert E. Schlueter

Councilors were: 1st District, E. L. Crowson, Pickering; 2nd District, O. C. Gebhart, St. Joseph; 3rd District, G. W. Whitely, Albany; 4th District, J. B. Wright, Trenton; 5th District, J. R. Bridges, Kahoka; 6th District, A. C. Crank, Canton; 7th District, J. D. Smith, Shelbina; 8th District, L. W. Cape, Maplewood; 9th District, A. R. McComas, Sturgeon, Chairman; 10th District, D. A. Barnhart, Huntsville; 11th District, G. W. Hawkins, Salisbury; 12th District, Spence Redman, Platte City; 13th District, Franklin E. Murphy, Kansas City; 14th District, C. T. Ryland, Lexington; 15th District, H. S. Crawford, Harrisonville; 16th District, E. N. Chastain, Butler; 17th District, W. J. Ferguson, Sedalia; 18th District, Frank DeVilbiss, Tipton; 19th District, S. V. Bedford, Jefferson City; 20th District, A. H. Hamel, St. Louis; 21st District, G. M. Rutledge, Ste. Genevieve; 22nd District, G. S. Cannon, Fornfelt; 23rd District, J. H. Timberman, Marston; 24th District, William Spaulding, Poplar Bluff; 25th District, O. A. Smith, Farmington; 26th District, W. H. Breuer, St. James; 27th District, J. H. Elliott, West Plains; 28th District, T. O. Klingner, Springfield; 29th District, R. L. Wills, Neosho.

E. J. GOODWIN, *Secretary.*

1918

The House of Delegates was called to order by Vice President W. A. Clark in the Chamber of the House of Representatives of the new Capitol, Jefferson City, on May 6, 1918, at 9:45 a. m. He announced that the President, Major Robert E. Schlueter, M.C., U.S.A., would not be able to attend the meeting. Quite a number of motions and resolutions had some relation to World War I which was raging at the time. The Association voted a donation of $25 to the Children's Code Commission, indorsed the Owen-Dyer bill, pending in Congress, which would raise the rank of physicians in the armed forces. The principle of the Workmen's Compensation bill was approved.

The vote was in favor of Excelsior Springs as the next place of meeting.

The officers for the next year were: President, Milton P. Overholser, Harrisonville; Vice Presidents, J. D. Brummall, Salisbury; J. C. Matthews, Springfield; T. G. Hetherlin, Louisiana; S. P. Child, Kansas City; John Isbell, Washington; Secretary-Editor, E. J. Goodwin, St. Louis; Treasurer, J. Franklin Welch, Salisbury.



M. P. Overholser

Councilors were: 1st District, E. L. Crowson, Pickering; 2nd District, C. R. Woodson, St. Joseph; 3rd District, G. W. Whitely, Albany; 4th District, J. B. Wright, Trenton; 5th District, J. R. Bridges, Kahoka; 6th District, A. C. Crank, Canton; 7th District, J. D. Smith, Shelbina; 8th District, L. W. Cape, Maplewood; 9th District, A. R. McComas, Sturgeon, Chairman; 10th District, D. A. Barnhart, Huntsville; 11th District, G. W. Hawkins, Salisbury; 12th District, Spence Redman, Platte City; 13th District, Franklin E. Murphy, Kansas City; 14th District, C. T. Ryland, Lexington; 15th District, H. S. Crawford, Harrisonville; 16th District, E. W. Chastain, Butler; 17th District, W. J. Ferguson, Sedalia; 18th District, J. P. Burke, California; 19th District, S. V. Bedford, Jefferson City; 20th District, A. H. Hamel, St. Louis; 21st District, G. M. Rutledge, Ste. Genevieve; 22nd District, G. S. Cannon, Fornfelt; 23rd District, J. H. Timberman, Marston; 24th District, Frank C. Hyde, Eminence; 25th District, O. A. Smith, Farmington; 26th District, W. H. Breuer, St. James; 27th District, J. C. B. Davis, Willow Springs; 28th District, T. O. Klingner, Springfield; 29th District, R. L. Wills, Neosho.

E. J. GOODWIN, *Secretary.*

1919

The House of Delegates was called to order in the ballroom of the Elms Hotel, Excelsior Springs, by President M. P. Overholser, on May 26, 1919, at 9:40 a. m. Considerable routine business was transacted and several amendments to the By-Laws were adopted, but none were of special importance.



N. P. Wood

This being the first meeting after the first World War, a Victory session was held on the first evening when a beautiful service flag was dedicated. The address was delivered by Herman E. Pearse, of Kansas City. Other addresses were delivered by members who had served during the war. The scientific program was varied and interesting but there was nothing outstanding. Jefferson City was selected as the next place of meeting.

The election of officers resulted as follows: President, N. P. Wood, Independence; Vice Presidents, J. J. Gaines, Excelsior Springs; E. F. Yancey, Sedalia; W. A. Clark, Jefferson City; A. M. Gregg, Joplin, J. C. Lyter, St. Louis; Secretary, E. J. Goodwin, St. Louis; Treasurer, J. Franklin Welch, Salisbury.

The Council was composed of the following members: 1st District, E. L. Crowson, Pickering; 2nd District, O. C. Gebhart, St. Joseph; 3rd District, G. W. Whitely, Albany; 4th District, J. B. Wright, Trenton; 5th District, J. R. Bridges, Kahoka; 6th District, P. F. Cole, Ewing; 7th District, J. D. Smith, Shelbina; 8th District, L. W. Cape, Maplewood; 9th District, A. R. McComas, Sturgeon, Chairman; 10th District, D. A. Barnhart, Huntsville; 11th District, G. W. Hawkins, Salisbury; 12th District, Spence Redman, Platte City; 13th District, Franklin E. Murphy, Kansas City; 14th District, C. T. Ryland, Lexington; 15th District, L. J. Schofield, Warrensburg; 16th District, E. N. Chastain, Butler; 17th District, W. J. Ferguson, Sedalia; 18th District, J. P. Burke, California; 19th District, S. V. Bedford, Jefferson City; 20th District, A. H. Hamel, St. Louis; 21st District, G. M. Rutledge, Ste. Genevieve; 22nd District, H. L. Reid, Charleston; 23rd District, J. H. Timberman, Marston; 24th District, Frank C. Hyde, Eminence; 25th District, O. A. Smith, Farmington; 26th District, W. H. Breuer, St. James; 27th District, J. C. B. Davis, Willow Springs; 28th District, A. L. Anderson, Springfield; 29th District, R. L. Wills, Neosho.

E. J. Goodwin, *Secretary.*

1920

The House of Delegates was called to order at 9:20 a. m., on April 6, 1920, in the Senate Chamber of the State Capitol, Jefferson City, by President N. P. Wood. The matter of reestablishing a four year course in the medical school and of establishing a State General Hospital for medical education was brought up again and the Committee on Health and Public Instruction was instructed to hold a joint meeting with the Board of Curators of the Missouri State University and discuss the subject. [This sounds like some more recent actions of this Association.]



Wilson J. Ferguson

At the General Session on the morning of April 7, Governor Frederick D. Gardner delivered an address of welcome, to which N. P. Wood made a brief response. A symposium on cancer was presented by a group of members who were actually outstanding authorities on the subject; a real intellectual treat. St. Joseph was selected as the place for the next meeting.

The following officers were elected: President, Wilson J. Ferguson, Sedalia; Vice Presidents, R. L. Neff, Joplin; T. J. Rigdon, Kennett; Thomas Chowning, Hannibal; W. C. Gaylor, St. Louis; James Q. Chambers, Kansas City; Secretary-Editor, E. J. Goodwin, St. Louis; Treasurer, J. Franklin Welch, Salisbury.

The following were members of the Council for the next year: 1st District, E. L. Crowson, Pickering; 2nd District, O. C. Gebhart, St. Joseph; 3rd District, A. H. Vandivert, Bethany; 4th District, J. B. Wright, Trenton; 5th District, J. R. Bridges, Kahoka; 6th District, J. W. Martin, Kirksville; 7th District, T. J. Downing, New London; 8th District, L. W. Cape, Maplewood; 9th District, A. R. McComas, Sturgeon, Chairman; 10th District, D. A. Barnhart, Huntsville; 11th District, G. W. Hawkins, Salisbury; 12th District, Spence Redman, Platte City; 13th District, Franklin E. Murphy, Kansas City; 14th District, C. T. Ryland, Lexington; 15th District, L. J. Schofield, Warrensburg; 16th District, Gail D. Allee, Lamar; 17th District, Guy Titsworth, Sedalia; 18th District, J. P. Burke, California; 19th District, S. V. Bedford, Jefferson City; 20th District, A. H. Hamel, St. Louis; 21st District, G. M. Rutledge, Ste. Genevieve; 22nd District, H. L. Reid, Charleston; 23rd District, J. H. Timberman, Marston; 24th District, Frank Hyde, Eminence; 25th District, O. A. Smith, Farmington; 26th District, W. H. Breuer, St. James; 27th District, J. C. B. Davis, Willow Springs; 28th District, A. L. Anderson, Springfield; 29th District, R. L. Wills, Neosho.

E. J. Goodwin, *Secretary.*

1921

The House of Delegates was called to order by President Wilson J. Ferguson in the Rathskeller of the Robidoux Hotel, St. Joseph, on May 24, 1921, at 10:00 a. m. The By-Laws were amended raising the dues to $5.00 per annum. All other business was of a routine nature and the scientific program was far above the average.



A. H. Hamel

Excelsior Springs was selected for the next place of meeting.

The following officers were elected: President, A. H. Hamel, St. Louis; Vice Presidents, B. W. Hays, Jackson; C. W. Russell, Springfield; Thornton E. Moore, Trenton; G. O. Cuppaidge, Moberly; H. W. Carle, St. Joseph; Secretary-Editor, E. J. Goodwin, St. Louis; Treasurer, J. Franklin Welch, Salisbury.

The Council for the next year was composed of the following Councilors: 1st District, W. G. Safford, Tarkio; 2nd District, O. C. Gebhart, St. Joseph; 3rd District, A. H. Vandivert, Bethany; 4th District, J. B. Wright, Trenton; 5th District, J. R. Bridges, Kahoka; 6th District, J. W. Martin, Kirksville; 7th District, T. J. Downing, New London; 8th District, L. W. Cape, Maplewood; 9th District, A. R. McComas, Sturgeon, Chairman; 10th District, D. A. Barnhart, Huntsville; 11th District, G. W. Hawkins, Salisbury; 12th District, Spence Redman, Platte City; 13th District, Franklin E. Murphy, Kansas City; 14th District, C. T. Ryland, Lexington; 15th District, L. J. Schofield, Warrensburg; 16th District, T. B. M. Craig, Nevada; 17th District, Guy Titsworth, Sedalia; 18th District, J. P. Burke, California; 19th District, W. A. Clark, Jefferson City; 20th District, H. S. McKay, St. Louis; 21st District, T. W. Cotton, Van Buren; 22nd District, H. L. Reid, Charleston; 23rd District, J. H. Timberman, Marston; 24th District, Frank Hyde, Eminence; 25th District, O. A. Smith, Farmington; 26th District, W. H. Breuer, St. James; 27th District, J. C. B. Davis, Willow Springs; 28th District, A. L. Anderson, Springfield; 29th District, R. L. Wills, Neosho.

E. J. Goodwin, *Secretary.*

1922

The House of Delegates convened in the Senate

Chamber of the State Capitol, Jefferson City, on May 2, 1922, at 9:55 a. m. with President A. H. Hamel presiding. It was the twenty-fifth anniversary of J. Franklin Welch's service as Treasurer of the Association. Jabez N. Jackson, H. E. Pearse, W. H. Breuer and W. W. Graves were the speakers at the commemoration of this occasion. The members were guests of Governor and Mrs. Arthur Hyde at a reception in the Governor's Mansion. Among other provisions the By-Laws were amended to empower the County Societies to elect members who have long served the Association and the profession to "honor" membership. They were to be exempted from dues but were to retain all the rights of active membership. The matter of a four-year medical school and a state general hospital was again given extended consideration and approved. The report of a special committee on Legislative Policy contained five strong and definite recommendations concerning the policy to be followed. This report was adopted.

Joplin was selected by a unanimous standing vote for the next place of meeting.

The following officers were elected: President, A. R. McComas, Sturgeon; 1st Vice President, H. C. Powers, Joplin; 2nd Vice President, Frank I. Ridge, Kansas City; 3rd Vice President, W. C. Gayler, St. Louis; 4th Vice President, E. C. Callison, Kirksville; 5th Vice President, L. M. Edens, Cabool; Secretary-Editor, E. J. Goodwin, St. Louis; Treasurer, J. Franklin Welch, Salisbury.



A. R. McComas

After the election of Councilors to fill the vacancies created by expired terms and resignation, the Council for the next year consisted of the following members: 1st District, W. G. Safford, Tarkio; 2nd District, O. C. Gebhart, St. Joseph; 3rd District, A. H. Vandivert, Bethany; 4th District, J. B. Wright, Trenton; 5th District, J. R. Bridges, Kahoka; 6th District, J. W. Martin, Kirksville; 7th District, T. J. Downing, New London; 8th District, L. W. Cape, Maplewood; 9th District, J. F. Harrison, Mexico; 10th District, D. A. Barnhart, Huntsville; 11th District, G. W. Hawkins, Salisbury; 12th District, Spence Redman, Platte City; 13th District, Geo. E. Bellows, Kansas City; 14th District, C. T. Ryland, Lexington; 15th District, L. J. Schofield, Warrensburg; 16th District, T. B. M. Craig, Nevada; 17th District, Guy Titsworth, Sedalia; 18th District, J. P. Burke, California; 19th District, W. A. Clark, Jefferson City; 20th District, A. H. Hamel, St. Louis; 21st District, T. W. Cotton, Van Buren; 22nd District, H. L. Reid, Charleston; 23rd District, J. H. Timberman, Marston; 24th District, Frank Hyde, Eminence; 25th District, O. A. Smith, Farmington; 26th District, W. H. Breuer, St. James; 27th District, J. C. B. Davis, Willow Springs; 28th District, A. L. Anderson, Springfield; 29th District, R. L. Wills, Neosho.

E. J. GOODWIN, *Secretary.*

1923

The House of Delegates was called to order in the Class Room, Scottish Rite Cathedral, Joplin, on May 8, 1923, at 9:45 a. m., by President A. R. McComas. The Committee on Constitution and By-Laws was instructed to suggest plans for the electing of the President so that it will be possible for every member to have a voice in his election. A resolution protesting against the training of World War I Veterans in chiropractic was passed. The four year course at the medical school of the Missouri University and a State General Hospital were again urged. The employment of a legislative agent was approved. A resolution protesting against the manner of enforcing the National Prohibition Act and the Harrison Narcotic Act without consulting physicians or submitting the draft of the regulations to physicians was approved.

There were twenty-eight scientific papers by members, and the discussion was active. Springfield was selected for the place of the next annual meeting.



G. Wilse Robinson

The following officers were elected: President, G. Wilse Robinson, Kansas City; 1st Vice President, J. W. Love, Springfield; 2nd Vice President, Robert F. Hyland, St. Louis; 3rd Vice President A. J. Campbell, Sedalia; 4th Vice President, J. B. Wright, Trenton; 5th Vice President, R. L. Hamilton, Richmond; Secretary-Editor, E. J. Goodwin, St. Louis; Treasurer, J. Franklin Welch, Salisbury.

After the elections to fill the vacancies, the following members of the Council for the next year were: 1st District, Austin McMichael, Rockport; 2nd District, H. S. Conrad, St. Joseph; 3rd District, A. H. Vandivert, Bethany; 4th District, G. M. Bristow, Princeton; 5th District, J. R. Bridges, Kahoka; 6th District, J. W. Martin, Kirksville; 7th District, T. J. Downing, New London; 8th District, B. P. Wentker, St. Charles; 9th District, A. R. McComas, Sturgeon; 10th District, D. A. Barnhart, Huntsville; 11th District, G. W. Hawkins, Salisbury; 12th District, Spence Redman, Platte City; 13th District, George E. Bellows, Kansas City; 14th District, C. T. Ryland, Lexington; 15th District, L. J. Schofield, Warrensburg; 16th District, T. B. M. Craig, Nevada; 17th District, Guy Titsworth, Sedalia; 18th District, John P. Burke, California; 19th District, W. A. Clark, Jefferson City; 20th District, A. H. Hamel, St. Louis, Chairman; 21st District, T. F. Estel, Altenburg; 22nd District, H. L. Reid, Charleston; 23rd District, T. J. Rigdon, Kennett; 24th District, T. W. Cotton, Van Buren; 25th District, R. W. Gay, Ironton; 26th District, W. H. Breuer, St. James; 27th District, J. C. B. Davis, Willow Springs; 28th District, A. L. Anderson, Springfield; 29th District, R. L. Wills, Neosho.

E. J. GOODWIN, *Secretary.*

1924

The House of Delegates was called to order in the Shrine Mosque, Springfield, by President G. Wilse Robinson, at 9:45 a. m., on May 6, 1924. The special committee on the method of electing the President presented a lengthy report with the recommendation that no change be made. It was decided to advocate the establishment of the clinical years of the Missouri University School of Medicine at Kansas City. F. C. Warnshuis, Speaker of

the House of Delegates of the American Medical Association, delivered an address at the meeting on "The Future of Medicine—An Ideal to Be Sought." Several amendments to the By-Laws of a routine nature were adopted. The organization of a Woman's Auxiliary was endorsed, and Mrs. Willard Bartlett was authorized to proceed with the organization and represent Missouri on the executive committee of the national auxiliary.

W. E. Dandy, Baltimore, read a paper on "X-ray Localization of Brain Tumors by Air Injection of Ventricles." The other papers by members were exceptionally good and many participated in the discussions.



W. A. Clark

Kansas City was selected as the place of meeting in 1925.

The following officers were elected: President, W. A. Clark, Jefferson City; 1st Vice President, C. B. Francisco, Kansas City; 2nd Vice President, H. L. Kerr, Crane; 3rd Vice President, E. C. Shelton, Eldon; 4th Vice President, E. L. Spence, Kennett; 5th Vice President, Jules M. Brady, St. Louis; Secretary-Editor, E. J. Goodwin, St. Louis; Treasurer, J. Franklin Welch, Salisbury.

The Council for the next year was composed as follows: 1st District, Austin McMichael, Rockport; 2nd District, H. S. Conrad, St. Joseph; 3rd District, A. H. Vandivert, Bethany; 4th District, G. M. Bristow, Princeton; 5th District, J. R. Bridges, Kahoka; 6th District, J. W. Martin, Kirksville; 7th District, T. J. Downing, New London; 8th District, B. P. Wentker, St. Charles; 9th District, A. R. McComas, Sturgeon, Chairman; 10th District, D. A. Barnhart, Huntsville; 11th District, G. W. Hawkins, Salisbury; 12th District, Spence Redman, Platte City; 13th District, G. E. Bellows, Kansas City; 14th District, C. T. Ryland, Lexington; 15th District, L. J. Schofield, Warrensburg; 16th District, T. B. Craig, Nevada; 17th District, Guy Titsworth, Sedalia; 18th District, J. P. Burke, California; 19th District, C. F. Enloe, Jefferson City; 20th District, R. E. Schlueter, St. Louis; 21st District, T. F. Estel, Altenburg; 22nd District, H. L. Reid, Charleston; 23rd District, T. J. Rigdon, Kennett; 24th District, T. W. Cotton, Van Buren; 25th District, R. W. Gay, Ironton; 26th District, W. H. Breuer, St. James; 27th District, J. C. B. Davis, Willow Springs; 28th District, A. L. Anderson, Springfield; 29th District, R. L. Wills, Neosho.

E. J. Goodwin, *Secretary.*

1925

The House of Delegates was called to order by President W. A. Clark, at 9:35 a. m., in the Grill Room of the Baltimore Hotel, Kansas City, on Monday, May 4, 1925. A resolution stating that the Missouri State Medical Association and the physicians of the state want the eleemosynary institutions kept entirely free from political exploitation was introduced and approved. A service was held in remembrance of J. Franklin Welch, at which D. A. Barnhart, G. Wilse Robinson, A. R. McComas, W. H. Breuer and M. P. Overholser spoke. The proposed raising of the annual tax under the Harrison Narcotic Act from $1.00 to $3.00 was declared unjust discrimination against the medical profession by a resolution which was adopted. The By-Laws were amended raising the annual dues to $8.00. John M. Dodson, Secretary of the Bureau on Health and Public Instruction of the American Medical Association, spoke on "Periodical Health Examination." Morris Fishbein, Editor of *The Journal of the American Medical Association,* delivered an address entitled "Mirrors of Medicine."

St. Louis was selected as the place of the 1926 annual meeting.

The following officers were elected: President, Emmett P. North, St. Louis; 1st Vice President, E. A. Dulin, Nevada; 2nd Vice President, H. W. Carle, St. Joseph; 3rd Vice President, C. H. Dixon, Moberly; 4th Vice President, A. R. Rowe, Poplar Bluff; 5th Vice President, C. B. Trader, Sedalia; Secretary-Editor: E. J. Goodwin, St. Louis; Treasurer, G. W. Hawkins, Salisbury.

After filling the vacancies created by resignations and expirations of terms of office by election, the Council for the next year consisted of the following: 1st District, Austin McMichael, Rockport; 2nd District, H. S. Conrad, St. Joseph; 3rd District, F. H. Broyles, Bethany; 4th District, G. M. Bristow, Princeton; 5th District, J. R. Bridges, Kahoka; 6th District, J. S. Gashwiler, Novinger; 7th District, T. J. Downing, New London; 8th District, B. P. Wentker, St. Charles; 9th District, A. R. McComas, Sturgeon, Chairman; 10th District, D. A. Barnhart, Huntsville; 11th District, J. H. Timberman, Chillicothe; 12th District, Spence Redman, Platte City; 13th District, Geo. E. Bellows, Kansas City; 14th District, C. T. Ryland, Lexington; 15th District, L. J. Schofield, Warrensburg; 16th District, T. B. Craig, Nevada; 17th District, Guy Titsworth, Sedalia; 18th District, J. P. Burke, California; 19th District, W. A. Clark, Jefferson City; 20th District, W. H. Vogt, St. Louis; 21st District, T. F. Estel, Altenburg; 22nd District, G. S. Cannon, Fornfelt; 23rd District, T. J. Rigdon, Kennett; 24th District, T. W. Cotton, Van Buren; 25th District, R. W. Gay, Ironton; 26th District, W. H. Breuer, St. James; 27th District, J. C. B. Davis, Willow Springs; 28th District, A. L. Anderson, Springfield; 29th District, R. L. Wills, Neosho.



Emmett P. North

E. J. Goodwin, *Secretary.*

1926

All the meetings were held in the St. Louis University Law School, 3643 Lindell Boulevard, St. Louis. The House of Delegates was called to order in the classroom by President Emmett P. North, at 10:00 a. m., on Monday, May 17, 1926. State Senator Alroy S. Phillips, Prohibition Administrator, addressed the House of Delegates. A resolution decrying the abuse of County Health Units by persons well able to pay for medical services was adopted. Special respect was given throughout the meeting to our Past President, Jabez N. Jackson, President-Elect of the American Medical Association. Dr. Jackson spoke both to the House of Delegates and in the General Meeting. The General Meetings were

held in the Auditorium and John A. Witherspoon, of Nashville, Tennessee, spoke on "The Achievements of Scientific Medicine in the Past Twenty-five Years." F. Park Lewis, Buffalo, New York, spoke on "Achievements in the Prevention of Blindness." Dr. North's Presidential address had the title "Responsibility of Organized Medicine to the Public."

The election of officers resulted as follows: President, W. H. Breuer, St. James; 1st Vice President, G. C. Willson, Nevada; 2nd Vice President, R. A. Woolsey, St. Louis; 3rd Vice President, F. M. McCollum, Kansas City; 4th Vice President, Paul F. Cole, Springfield; 5th Vice President, U. P. Haw, Benton; Secretary-Editor, E. J. Goodwin, St. Louis; Treasurer, G. W. Hawkins, Salisbury.



William H. Breuer

After the election to fill the vacancies in the Council, this body consisted of the following: 1st District, Austin McMichael, Rockport; 2nd District, H. S. Conrad, St. Joseph; 3rd District, F. H. Broyles, Bethany; 4th District, Geo. M. Bristow, Princeton; 5th District, J. R. Bridges, Kahoka; 6th District, J. S. Gashwiler, Novinger; 7th District, T. J. Downing, New London; 8th District, B. P. Wentker, St. Charles; 9th District, A. R. McComas, Sturgeon, Chairman; 10th District, D. A. Barnhart, Huntsville; 11th District, J. H. Timberman, Chillicothe; 12th District, Spence Redman, Platte City; 13th District, Geo. E. Bellows, Kansas City; 14th District, C. T. Ryland, Lexington; 15th District, L. J. Schofield, Warrensburg; 16th District, T. B. M. Craig, Nevada; 17th District, Guy Titsworth, Sedalia; 18th District, W. L. Allee, Eldon; 19th District W. A. Clark, Jefferson City; 20th District, W. C. Gayler, St. Louis; 21st District, T. F. Estel, Altenburg; 22nd District, G. S. Cannon, Fornfelt; 23rd District, Charles W. Brown, Campbell; 25th District, R. W. Gay, Ironton; 26th District, J. A. McComb, Lebanon; 27th District, J. C. B. Davis, Willow Springs; 28th District, T. O. Klingner, Springfield; 29th District, R. L. Wills, Neosho.

E. J. GOODWIN, *Secretary.*

1927

The House of Delegates was called to order in the Pettis County Court House, Sedalia, on Monday, May 27, 1927, by President W. H. Breuer. The first and most important business was the Flood Relief because of the damage done and the necessity for doctors to the refugees along the Mississippi River Basin. We are pleased to note that the medical profession adequately responded to the call. A thoroughly revised Constitution and By-Laws, the former having laid over for one year, were adopted. The provisions of this document, among others, were the creation of a President-Elect with no Vice President, the President-Elect taking the place of Vice Presidents. The twenty-nine Councilors were retained, to be elected for two years, half to be voted upon each year, and they had all the privileges in the House of Delegates. The following were the Standing Committes: Committee on Public Policy, Committee on Medical Education and Hospitals, Committee on Medical Economics, Committee on Scientific Work, Committee on Publication, Committee on Medical Defense, and Committee on Postgraduate Course. The Reference Committees of the House of Delegates were: (1) Constitution and By-Laws; (2) Miscellaneous Affairs; (3) Resolutions. The creation of a State Commission of Alienists to pass on all expert testimony in criminal cases was urged. A state hospital for crippled children was recommended, also a state department for nervous and mental diseases. Throughout the meeting Jabez N. Jackson was given honor and respected as President of the American Medical Association.



Frank G. Nifong

C. M. Rosser, Dallas, Texas, addressed the General Session on "What, Why, and How We Must Tell the World," and F. C. Waite, Cleveland, Ohio, spoke on "The Practitioner of Medicine and Medical Education."

The election of officers resulted as follows: President, Frank G. Nifong, Columbia; President-Elect, Frank I. Ridge, Kansas City; Secretary-Editor, E. J. Goodwin, St. Louis; Treasurer, G. W. Hawkins, Salisbury.

The Council were: 1st District, O. C. Gebhart, Oregon; 2nd District, H. S. Conrad, St. Joseph; 3rd District, A. J. Crockett, Stanberry; 4th District, G. M. Bristow, Princeton; 5th District, J. R. Bridges, Kahoka; 6th District, J. S. Gashwiler, Novinger; 7th District, T. J. Downing, New London; 8th District, B. K. Stumberg, St. Charles; 9th District, A. R. McComas, Sturgeon, Chairman; 10th District, D. A. Barnhart, Huntsville; 11th District, J. H. Timberman, Chillicothe; 12th District, Spence Redman, Platte City; 13th District, G. E. Bellows, Kansas City; 14th District, C. T. Ryland, Lexington; 15th District, L. J. Schofield, Warrensburg; 16th District, T. B. M. Craig, Nevada; 17th District, Guy Titsworth, Sedalia; 18th District, W. L. Allee, Eldon; 19th District, M. R. Aldridge, Jefferson City; 20th District, W. C. Gayler, St. Louis; 21st District, T. F. Estel, Altenburg; 22nd District, U. P. Haw, Benton; 23rd District, T. J. Rigdon, Kennett; 24th District, T. W. Cotton, Van Buren; 25th District, R. W. Gay, Ironton; 26th District, W. H. Breuer, St. James; 27th District, J. C. B. Davis, Willow Springs; 28th District, W. M. West, Monett; 29th District, R. M. James, Joplin.



Frank I. Ridge

E. J. GOODWIN, *Secretary.*

1928

The House of Delegates was called to order by President Frank G. Nifong, in the Missouri Methodist Church, Columbia, at 9:45 a. m., on Monday, May 14, 1928. The Secretary reported that the Association had 3,279 members on May 1, 1928. It was recommended that the Constitution of the state be

amended so that members of the legislature should be paid $1,000 per session instead of $5 per day. A hospital for crippled children was again recommended. A. R. McComas, W. J. Ferguson and Guy L. Noyes were reported sick, so separate resolutions wishing them a speedy recovery were adopted.

The scientific program was good. Many of the best practitioners and specialists of the state took part. Carl H. Greene, Rochester, Minnesota, spoke on "Clinical Considerations in the Diagnosis and Treatment of Jaundice and Ascites." Frank Smithies, Chicago, read a paper on "Intestinal Stasis." F. M. Pottenger, Monrovia, California, delivered an address on "The Public's Estimate of the Doctor," at the evening session, at which Frank Smithies discussed "Dyspepsia." Thomas S. Cullen, Baltimore, spoke on "Uterine Hemorrhage," and J. C. Bloodgood, Baltimore, gave an address on "What Every Doctor Should Know About Cancer." A symposium on "Backache" aroused great interest and was most freely discussed.

Springfield was chosen for the place of the next meeting, and Frank I. Ridge was installed as President.

The election of officers resulted as follows: President-Elect, T. W. Cotton, Van Buren; Secretary-Editor, E. J. Goodwin, St. Louis; Treasurer, G. W. Hawkins, Salisbury.



T. W. Cotton

After the election of Councilors for the vacancies which resulted from a resignation and the expired terms for the odd numbered districts, the Council consisted of the following members for the ensuing year: 1st District, O. C. Gebhart, Oregon; 2nd District, H. S. Conrad, St. Joseph; 3rd District, J. A. Crockett, Stanberry; 4th District, G. M. Bristow, Princeton; 5th District, J. R. Bridges, Kahoka; 6th District, J. S. Gashwiler, Novinger; 7th District, T. J. Downing. New London; 8th District, B. K. Stumberg, St. Charles; 9th District, A. R. McComas, Sturgeon, Chairman; 10th District, D. A. Barnhart, Huntsville; 11th District, J. H. Timberman, Chillicothe; 12th District, Spence Redman, Platte City; 13th District, O. S. Gilliland, Kansas City; 14th District, C. T. Ryland, Lexington; 15th District, L. J. Schofield, Warrensburg; 16th District, T. B. M. Craig, Nevada; 17th District, Guy Titsworth, Sedalia; 18th District, W. L. Allee, Eldon; 19th District, J. S. Summers, Jefferson City; 20th District, W. C. Gayler, St. Louis; 21st District, T. F. Estel, Altenburg; 22nd District, U. P. Haw, Benton; 23rd District, J. B. Luten, Caruthersville; 24th District, A. R. Rowe, Poplar Bluff; 25th District, R. W. Gay, Ironton; 26th District, W. H. Breuer, St. James, Vice-Chairman; 27th District, J. C. B. Davis, Willow Springs; 28th District, W. M. West, Monett; 29th District, R. M. James, Joplin.

E. J. Goodwin, *Secretary.*

1929

The House of Delegates convened on the Roof Garden of the Kentwood Arms Hotel, Springfield, at 9:50 a. m., on Monday, May 13, 1929, President Frank I. Ridge presiding. The Committee on Public Policy reported that the introduction in the State Legislature of a bill providing a State General Hospital is premature. It recommended that there should be a physician in the coroner's office in every county, and reported progress on practically every matter which had been approved by the Association and had been referred to this Committee. The Council reported on its meeting of December 6, 1928, and on five meetings of its Executive Committee which were held since the last Annual Meeting of the Association. This was the first real activity on the part of the Council which has charge of the Association's business between Annual Meetings a real step forward. There were no amendments to the Constitution and By-Laws proposed or adopted. The Scientific Program was good with six out-of-state guests presenting papers: Peter Bassoe, Chicago; J. H. J. Upham, Columbus, Ohio; Preston M. Hickey, Ann Arbor, Michigan; Stuart Prichard, Battle Creek, Michigan; Philip D. Wilson, Boston, Massachusetts; and H. E. Kleinschmidt, New York City. Many of the papers were read by outstanding teachers and specialists of the state. The discussions were most active.



W. C. Gayler

Hannibal was selected as the place for the next meeting.

The election resulted as follows: President-Elect, W. C. Gayler, St. Louis; Secretary-Editor, E. J. Goodwin, St. Louis; Treasurer, G. W. Hawkins, Salisbury.

After the election to fill the expired two year terms of the Councilors of the even numbered districts, the Council was composed of the following: 1st District, O. C. Gebhart, Oregon; 2nd District, Daniel Morton, St. Joseph; 3rd District, J. A. Crockett, Stanberry; 4th District, G. M. Bristow, Princeton; 5th District, J. R. Bridges, Kahoka; 6th District, J. S. Gashwiler, Novinger; 7th District, T. J. Downing, New London; 8th District, B. K. Stumberg, St. Charles; 9th District, A. R. McComas, Sturgeon, Chairman; 10th District, D. A. Barnhart, Huntsville; 11th District, J. H. Timberman, Chillicothe; 12th District, Spence Redman, Platte City; 13th District, O. S. Gilliland, Kansas City; 14th District, C. T. Ryland, Lexington; 15th District, L. J. Schofield, Warrensburg; 16th District, J. T. Hornback, Nevada; 17th District, Guy Titsworth, Sedalia; 18th District, W. L. Allee, Eldon; 19th District, J. S. Summers, Jefferson City; 20th District, Ralph L. Thompson, St. Louis; 21st District, T. F. Estel, Altenburg; 22nd District, U. P. Haw, Benton; 23rd District, J. B. Luten, Caruthersville; 24th District, A. R. Rowe, Poplar Bluff; 25th District, R. W. Gay, Ironton; 26th District, W. H. Breuer, St. James, Vice-Chairman; 27th District, J. C. B. Davis, Willow Springs; 28th District, W. M. West, Monett; 29th District, R. M. James, Joplin.

E. J. Goodwin, *Secretary.*

1930

The meeting of the House Delegates was called to order at the Elks' Club, Hannibal, on Monday, May 12, 1930, at 9:45 a. m. by President T. W. Cotton.

The Andrew Walker McAlester Memorial Foundation was established, the funds of this Foundation to be transferred to the custody of the Board of Curators of the University of Missouri to be invested and reinvested by them as a permanent fund and make appropriation from the income in accordance with the recommendations of an Administrative Committee. Amendments to the Constitution creating three Vice Presidents and defining their duties were laid over for one year. A By-Law making the President-Elect a member of the Council was adopted. A "Widows' Fund" was established.

Joplin was voted as the place for the next meeting. Morris Fishbein, Editor of the *Journal of the American Medical Association* was commended unanimously "for his unrelenting activity and efforts to protect the public from quackery."

The scientific program contained a symposium on "Contagious Diseases," one on "Chest Diseases in Childhood," and one on "Gynecology and Obstetrics." These met with more than ordinary approval and the discussions were most active. William Gerry Morgan, Washington, D. C., President-Elect of the American Medical Association, was guest of honor. He addressed the evening session on May 14 with "Is the Medical Profession Discharging Its Full Duty to the Public?"



J. F. Harrison

W. C. Gayler, St. Louis, was installed as President.

The election resulted as follows: President-Elect, John Frank Harrison, Mexico; Secretary-Editor, E. J. Goodwin, St. Louis; Treasurer, G. W. Hawkins, Salisbury.

After the election of Councilors for the odd numbered districts, whose terms of office had expired, the Council for the next year consisted of the following members: 1st District, O. C. Gebhart, Oregon; 2nd District, Daniel Morton, St. Joseph; 3rd District, J. A. Crockett, Stanberry; 4th District, G. M. Bristow, Princeton; 5th District, J. R. Bridges, Kahoka; 6th District, J. S. Gashwiler, Novinger; 7th District, H. B. Goodrich, Hannibal; 8th District, B. K. Stumberg, St. Charles; 9th District, A. R. McComas, Sturgeon, Chairman; 10th District, D. A. Barnhart, Huntsville; 11th District, J. H. Timberman, Chillicothe; 12th District, Spence Redman, Platte City; 13th District, O. S. Gilliland, Kansas City; 14th District, C. T. Ryland, Lexington; 15th District, L. J. Schofield, Warrensburg; 16th District, J. T. Hornback, Nevada; 17th District, Guy Titsworth, Sedalia; 18th District, W. L. Allee, Eldon; 19th District, J. S. Summers, Jefferson City; 20th District, Ralph L. Thompson, St. Louis; 21st District, T. F. Estel, Altenburg; 22nd District, U. P. Haw, Benton; 23rd District, J. B. Luten, Caruthersville; 24th District, A. R. Rowe, Poplar Bluff; 25th District, W. W. Johnston, Farmington; 26th District, W. H. Breuer, St. James, Vice-Chairman; 27th District, J. C. B. Davis, Willow Springs; 28th District, W. M. West, Monett; 29th District, R. M. James, Joplin.

E. J. GOODWIN, *Secretary.*

1931

The House of Delegates was called to order by President W. C. Gayler, in the Connor Hotel, Joplin, on Monday, May 11, 1931, at 9:50 a. m.

The amendment to the Constitution creating three Vice Presidents, which had been introduced at the previous meeting, was adopted. The By-Laws were amended empowering the Council to select one of the Vice Presidents to fill the office of President if that became necessary. Another new provision of the By-Laws was one that county societies were given the right to legalize the membership of applicants who "reside or practice" in a certain county. A Committee on Cancer was created to ascertain the status of cancer control and treatment in the State and to cooperate with the American Society for the Control of Cancer.



Joseph W. Love

At the General Session, Morris Fishbein, Chicago, Editor of the *Journal of the American Medical Association* spoke on "The Trend of Medical Practice," and Alton Ochsner, New Orleans, Professor of Surgery in Tulane University, spoke on "What One Should Expect of the Physician and Surgeon." Dr. Ochsner also spoke on "Intestinal Obstruction" on the Scientific Program. G. S. Foster, Manchester, New Hampshire, spoke on "Some Facts in Regard to Surgical Shock."

Jefferson City was selected for the next meeting place, and J. Frank Harrison, Mexico, was installed as President.

The election of officers resulted as follows: President-Elect, Joseph W. Love, Springfield; Vice-Presidents, Joseph Grindon, St. Louis; P. D. Gum, West Plains; B. W. Hays, Jackson; Secretary-Editor, E. J. Goodwin, St. Louis; Treasurer, G. W. Hawkins, Salisbury.

After the election of Councilors for the even numbered districts and for the vacancy created by the death of T. F. Estel of the 21st District, the Council for the next year was composed of the following members: 1st District, O. C. Gebhart, Oregon; 2nd District, W. T. Elam, St. Joseph; 3rd District, J. A. Crockett, Stanberry; 4th District, J. B. Wright, Trenton; 5th District, J. R. Bridges, Kahoka; 6th District, J. S. Gashwiler, Novinger; 7th District, H. B. Goodrich, Hannibal; 8th District, B. K. Stumberg, St. Charles; 9th District, A. R. McComas, Sturgeon, Chairman; 10th District, D. A. Barnhart, Huntsville; 11th District, J. H. Timberman, Chillicothe; 12th District, Spence Redman, Platte City; 13th District, O. S. Gilliland, Kansas City; 14th District, C. T. Ryland, Lexington; 15th District, L. J. Schofield, Warrensburg; 16th District, J. T. Hornback, Nevada; 17th District, Guy Titsworth, Sedalia; 18th District, W. L. Allee, Eldon; 19th District, J. S. Summers, Jefferson City; 20th District, R. L. Thompson, St. Louis; 21st District, N. W. Jarvis, Festus; 22nd District, U. P. Haw, Benton; 23rd District, J. B. Luten, Caruthersville; 24th District, F. L. Kneibert, Poplar Bluff; 25th District, W. W. Johnston, Farmington; 26th District, W. H. Breuer, St. James, Vice-Chairman; 27th District, J. C. B. Davis, Willow Springs; 28th District, W. M. West, Monett; 29th District, R. M. James, Joplin.

E. J. GOODWIN, *Secretary.*

1932

All the sessions of this meeting were held in Junior College, Jefferson City. The House of Delegates was called to order at 9:50 a. m., on May 23, 1932, by President J. Frank Harrison. Mrs. A. B. McGlothlan, St. Joseph, President of the Woman's Auxiliary of the American Medical Association, addressed the House on the activities of the national organization. One hundred reprints of her address were voted Mrs. McGlothlan for distribution to other auxiliaries. Governor H. L. Caulfield delivered an address of welcome. The committees on Cancer, Postgraduate Course and Medical Economics submitted lengthy reports describing their activities in detail. The Council was enlarged to thirty districts. Kansas City was selected for the next meeting.

E. H. Cary, Dallas, Texas, President of the American Medical Association, was the guest of honor and delivered an address on "The Sequential Development of the Physical Sciences." Burton J. Lee, New York City, gave two addresses on "Cancer." William S. Middleton, Madison, Wisconsin, spoke on "Syphilis of the Circulatory System." E. T. Bell, Minneapolis, Minnesota, spoke on "Hypertension."

Joseph W. Love, Springfield, was installed as President.

The election of officers resulted as follows: President-Elect, W. L. Allee, Eldon; Vice-Presidents, Ellsworth S. Smith, St. Louis; O. S. Gilliland, Kansas City; R. W. Hogeboom, Springfield; Secretary-Editor, E. J. Goodwin, St. Louis; Treasurer, G. W. Hawkins, Salisbury.



W. Logan Allee

After the election of Councilors for the odd numbered districts, the vacancies and the new thirtieth district, the Council consisted of the following members: 1st District, O. C. Gebhart, Oregon; 2nd District, W. T. Elam, St. Joseph; 3rd District, J. A. Crockett, Stanberry; 4th District, J. R. Bridges, Kahoka; 6th District, J. S. Gashwiler, Novinger; 7th District, W. D. Pipkin, Monroe City; 8th District, B. K. Stumberg, St. Charles; 9th District, A. R. McComas, Sturgeon, Chairman; 10th District, D. A. Barnhart, Huntsville; 11th District, J. H. Timberman, Chillicothe; 12th District, Spence Redman, Platte City; 13th District, A. J. Welch, Kansas City; 14th District, C. T. Ryland, Lexington; 15th District, L. J. Schofield, Warrensburg; 16th District, J. T. Hornback, Nevada; 17th District, Guy Titsworth, Sedalia; 18th District, E. C. Shelton, Eldon; 19th District, J. S. Summers, Jefferson City; 20th District, R. L. Thompson, St. Louis; 21st District, N. W. Jarvis, Festus; 22nd District, U. P. Haw, Benton; 23rd District, J. B. Luten, Caruthersville; 24th District, F. L. Kneibert, Poplar Bluff; 25th District, P. S. Tate, Farmington; 26th District, W. H. Breuer, St. James, Vice-Chairman; 27th District, J. C. B. Davis, Willow Springs; 28th District, W. M. West, Monett; 29th District, R. M. James, Joplin; 30th District, R. B. Denny, Creve Coeur.

E. J. Goodwin, *Secretary.*

1933

All the sessions of this meeting were held in the Congress Room of the President Hotel, Kansas City.

The House of Delegates was called to order at 9:45 a. m., on Monday, May 1, 1933, by President Joseph W. Love. Eighty-seven officers and delegates answered the roll call. A resolution from Jackson County and one from Clay County requesting a lowering of the dues because of the existing depression were introduced. After the report of the Reference Committee on Amendments to the Constitution and By-Laws was received, a lengthy discussion resulted. Finally it was proposed to amend the By-Laws so that no member shall be required to pay any dues to the State Association after he reaches the age of 68 years. A resolution asking the American Medical Association to devise means for the control of a delinquent member who transfers to a society in a different state was adopted. The number of Councilor districts was increased to thirty-one. The office of Assistant Secretary was created. Dr. Love's presidential address was entitled: "The Practice of Medicine Is an Individual Service." Arnold S. Jackson, Madison, Wisconsin, read one paper on "Diagnosis and Treatment of Diseases of the Thyroid Gland," and another on "Cause and Prevention of Goiter." Peter C. Kronfeld, Chicago, Illinois, spoke on "Tear Searing Operation." J. Gordon Wilson, Chicago, Illinois, spoke on "Vertigo." The symposium on "Tuberculosis" was interesting and instructive.

On Tuesday evening A. R. McComas was honored by a dinner given by his friends in recognition of his many years of service and devotion to his profession and the Association.

St. Joseph was selected for the 1934 meeting place, and W. L. Allee, Eldon, was installed as President.

The election of officers resulted as follows: President-Elect, C. T. Ryland, Lexington; Vice Presidents, J. F. Owens, St. Joseph; Hugh J. Wise, Sparta; P. W. Jennings, Canton; Secretary-Editor, E. J. Goodwin, St. Louis; Assistant Secretary, Mr. E. H. Bartelsmeyer, St. Louis; Treasurer, Ross A. Woolsey, St. Louis.



C. T. Ryland

After election of Councilors for the even numbered districts and the appointment of one for the newly created thirty-first district, the Council consisted of the following members: 1st District, O. C. Gebhart, Oregon; 2nd District, W. T. Elam, St. Joseph; 3rd District, J. A. Crockett, Stanberry; 4th District, J. B. Wright, Trenton; 5th District, J. R. Bridges, Kahoka; 6th District, J. S. Gashwiler, Novinger; 7th District, W. D. Pipkin, Monroe City; 8th District, B. Kurt Stumberg, St. Charles; 9th District, A. R. McComas, Sturgeon, Chairman; 10th District, D. A. Barnhart, Huntsville; 11th District, J. H. Timberman, Chillicothe; 12th District, Spence Redman, Platte City; 13th District, A. J. Welch, Kansas City; 14th District, W. A. Braecklein, Higginsville; 15th District, L. J. Schofield, Warrensburg; 16th District, J. T. Hornback, Nevada; 17th District, Guy Titsworth, Sedalia; 18th Dis-

trict, E. C. Shelton, Eldon; 19th District, J. S. Summers, Jefferson City; 20th District, Ralph L. Thompson, St. Louis; 21st District, N. W. Jarvis, Festus; 22nd District, U. P. Haw, Benton; 23rd District, J. B. Luten, Caruthersville; 24th District, T. W. Cotton, Van Buren; 25th District, P. S. Tate, Farmington; 26th District, W. H. Breuer, St. James, Vice-Chairman; 27th District, J. C. B. Davis, Willow Springs; 28th District, W. M. West, Monett; 29th District, R. M. James, Joplin; 30th District, R. B. Denny, Creve Coeur; 31st District, H. A. Lowe, Springfield.

E. J. GOODWIN, *Secretary.*

1934

The House of Delegates was called to order at 9:30 a. m., on Monday, May 7, 1934, in the Crystal Room of the Robidoux Hotel, St. Joseph, by President W. L. Allee. Numerous amendments to the Constitution and By-Laws were proposed, of which three were adopted. One provides for an annual audit and budget to be prepared and published on or before March 31. One permits county societies to estimate the number of their delegates based on the paid-up membership on December 31 of the preceding year. Another gives hyphenated societies one delegate for each county in the hyphenated name. Both the effort to reduce the dues and that to exempt members, who are 68 years or over, failed. The amendments to the Constitution were laid over for one year.

There was a testimonial dinner for E. J. Goodwin who had been Secretary for thirty years.

Excelsior Springs was selected for the place of the next meeting. The guest speakers at the open meeting on Tuesday evening were: Walter L. Bierring, Des Moines, Iowa, President-Elect of the American Medical Association; John H. Musser, New Orleans, Louisiana, Vice President of the American Medical Association; and Reverend Alphonse M. Schwitalla, S. J., Dean of St. Louis University School of Medicine. Drs. Musser and Bierring also presented scientific papers. G. H. Ewell, Madison, Wisconsin, read a paper on "Carcinoma of the Prostate." Charles M. Swab, Omaha, Nebraska, read a paper entitled "The Ocular Complication of Gonorrhea." Dr. Swab and Deane M. Lierle, Iowa City, Iowa, also conducted clinics.



E. Lee Miller

C. T. Ryland, Lexington, was installed as President.

The following officers were elected: President-Elect, E. Lee Miller, Kansas City; Vice Presidents, Dudley S. Conley, Columbia; Frank G. Mays, Washington; Urban J. Busiek, Springfield; Secretary-Editor, E. J. Goodwin, St. Louis; Assistant Secretary, Mr. E. H. Bartelsmeyer, St. Louis; Treasurer, Ross A. Woolsey, St. Louis.

After the election of Councilors for the expired terms for the odd numbered districts and for one resignation, the Council for the next year had the following members: 1st District, O. C. Gebhart, Oregon; 2nd District, W. T. Elam, St. Joseph; 3rd District, J. C. Crockett, Stanberry; 4th District, J. B. Wright, Trenton; 5th District, J. R. Bridges, Kahoka; 6th District, J. S. Gashwiler, Novinger; 7th District, W. D. Pipkin, Monroe City; 8th District, B. K. Stumberg, St. Charles; 9th District, A. R. McComas, Sturgeon, Chairman; 10th District, D. A. Barnhart, Huntsville; 11th District, J. H. Timberman, Chillicothe; 12th District, Spence Redman, Platte City; 13th District, A. J. Welch, Kansas City; 14th District, W. A. Braecklein, Higginsville; 15th District, L. J. Schofield, Warrensburg; 16th District, J. T. Hornback, Nevada; 17th District, Guy Titsworth, Sedalia; 18th District, E. C. Shelton, Eldon; 19th District, J. S. Summers, Jefferson City; 20th District, C. H. Neilson, St. Louis; 21st District, N. W. Jarvis, Festus; 22nd District, U. P. Haw, Benton; 23rd District, J. B. Luten, Caruthersville; 24th District, T. W. Cotton, Van Buren; 25th District, P. S. Tate, Farmington; 26th District, W. H. Breuer, St. James, Vice-Chairman; 27th District, J. C. B. Davis, Willow Springs; 28th District, W. M. West, Monett; 29th District, R. M. James, Joplin; 30th District, R. B. Denny, Creve Coeur; 31st District, H. A. Lowe, Springfield.

E. J. GOODWIN, *Secretary.*

1935

The House of Delegates was called to order in the Ballroom of the Elms Hotel, Excelsior Springs, by President C. T. Ryland, at 9:30 a. m., on Monday, May 6, 1935. There was an unusually large scientific exhibit and ten commercial exhibits. One amendment to the Constitution and two amendments to the By-Laws failed to carry. The report of the Secretary and that of the Council were longer than usual and reflected an extraordinary amount of progressive activity.



Ross A. Woolsey

B. G. Leland, Director of the Bureau of Medical Economics of the American Medical Association, delivered an address on: "Medical Care for the American People." At the evening meeting of May 7, Oswald S. Lowsley, New York, spoke on "New Developments in Renal Surgery," and C. S. O'Brien, Iowa City, read a paper, "Ocular Tuberculosis," before the section on Diseases of the Eye, Ear, Nose and Throat. There was a special session on Physical Therapy with two valuable presentations by J. S. Coulter, Chicago, Illinois, and A. J. Kotkis, St. Louis. There were clinical sessions Thursday morning at the Veterans' Hospital.

Columbia was selected for the next meeting place, and E. Lee Miller, Kansas City, was installed as President.

The following officers were elected: President-Elect, Ross A. Woolsey, St. Louis; Vice-Presidents, John D. Hayward, Clayton; W. A. Braecklein, Higginsville; E. C. Robichaux, Excelsior Springs; Secretary-Editor, E. J. Goodwin, St. Louis; Assistant Secretary and Business Manager, Mr. E. H. Bartelsmeyer, St. Louis; Treasurer, John R. Caulk, St. Louis.

After the election of Councilors for the expired terms of those for the even numbered districts and for the vacancies created by two resignations and for one death, the Council consisted of the following members: 1st District, O. C. Gebhart, Oregon; 2nd District, W. T. Elam, St. Joseph; 3rd District, J. C. Crockett, Stanberry; 4th District, J. B. Wright, Trenton; 5th District, J. R. Bridges, Kahoka; 6th District, J. S. Gashwiler, Novinger; 7th District, W. D. Pipkin, Monroe City; 8th District, B. K. Stumberg, St. Charles; 9th District, A. R. McComas, Sturgeon, Chairman; 10th District, C. H. Dixon, Moberly; 11th District, J. H. Timberman, Chillicothe; 12th District, Spence Redman, Platte City; 13th District, E. P. Heller, Kansas City; 14th District, C. T. Ryland, Lexington; 15th District, L. J. Schofield, Warrensburg; 16th District, C. W. Luter, Butler; 17th District, Guy Titsworth, Sedalia; 18th District, W. L. Allee, Eldon; 19th District, J. S. Summers, Jefferson City; 20th District, C. H. Neilson, St. Louis; 21st District, N. W. Jarvis, Festus; 22nd District, B. W. Hays, Jackson; 23rd District, J. B. Luten, Caruthersville; 24th District, T. W. Cotton, Van Buren; 25th District, P. S. Tate, Farmington; 26th District, W. H. Breuer, St. James, Vice-Chairman; 27th District, J. C. B. Davis, Willow Springs; 28th District, W. M. West, Monett; 29th District, R. M. James, Joplin; 30th District, R. B. Denny, Creve Coeur; 31st District, H. A. Lowe, Springfield.

E. J. Goodwin, *Secretary.*

1936

The House of Delegates was called to order in the Ballroom of the Hotel Tiger, Columbia, on Monday, April 13, 1936, at 9:45 a. m., by President E. Lee Miller, Kansas City.

The reports of the officers and committees were uniformly long and described their many activities in detail. More than the usual number of amendments to the By-Laws were proposed, some of which failed of adoption. It was stipulated that each candidate for Councilor must reside or practice in the district for which he is nominated. The number of standing committees was increased to include one on Maternal Welfare and one on Mental Health. The Committee on Health and Public Instruction was henceforth to be known as the McAlester Foundation. The duties of these committees were defined.



Dudley S. Conley

A reference committee on Medical Education and Public Welfare of the House of Delegates was incorporated in the By-Laws. It was decided that the free choice of physician and the relationship and responsibility of the physician to the patient in the care of the indigent patients and those of the low income group shall always be retained.

Austin A. Hayden, Secretary of the Board of Trustees of the American Medical Association, showed an interesting and instructive motion picture of that Association's Headquarters in Chicago. Joseph L. Baer, Chicago, Illinois, spoke on "Operative Obstetrics."

Ross A. Woolsey, St. Louis, was installed as President, and Cape Girardeau was chosen as the place for the 1937 annual meeting.

The election of officers resulted as follows: President-elect Dudley S. Conley, Columbia; Vice Presidents, A. H. Marshall, Charleston; James E. Stowers, Kansas City; E. Y. Pare, Leeton; Secretary-Editor, E. J. Goodwin, St. Louis; Assistant Secretary and Business Manager, Mr. E. H. Bartelsmeyer, St. Louis; Treasurer, John R. Caulk, St. Louis.

The election of Councilors for the expired terms of those for the odd numbered districts and the several vacancies created by death and resignation, left the Council with the following members for the next year: 1st District, O. C. Gebhart, Oregon; 2nd District, W. T. Elam, St. Joseph; 3rd District, J. A. Crockett, Stanberry; 4th District, Arthur S. Bristow, Princeton; 5th District, J. R. Bridges, Kahoka; 6th District, J. S. Gashwiler, Novinger; 7th District, W. D. Pipkin, Monroe City; 8th District, B. K. Stumberg, St. Charles; 9th District, A. R. McComas, Sturgeon, Chairman; 10th District, Thomas S. Fleming, Moberly; 11th District, J. H. Timberman, Chillicothe; 12th District, Spence Redman, Platte City; 13th District, E. P. Heller, Kansas City; 14th District, C. T. Ryland, Lexington; 15th District, L. J. Schofield, Warrensburg; 16th District, C. W. Luter, Butler; 17th District, Guy Titsworth, Sedalia; 18th District, W. L. Allee, Eldon; 19th District, J. S. Summers, Jefferson City; 20th District, Curtis H. Lohr, St. Louis; 21st District, C. E. Fallet, DeSoto; 22nd District, B. W. Hays, Jackson; 23rd District, J. B. Luten, Caruthersville; 24th District, T. W. Cotton, Van Buren; 25th District, P. S. Tate, Farmington; 26th District, W. H. Breuer, St. James, Vice-Chairman; 27th District, J. C. B. Davis, Willow Springs; 28th District, W. M. West, Monett; 29th District, R. M. James, Joplin; 30th District, R. B. Denny, Creve Coeur; 31st District, H. A. Lowe, Springfield.

E. J. Goodwin, *Secretary.*

1937

The House of Delegates was called to order by President Ross A. Woolsey at 10:00 a. m., on Monday, May 10, 1937, in the Academic Hall of Southeast Missouri State Teacher's College, Cape Girardeau. Amendments to the Constitution were proposed and laid over for one year to be voted on in 1938. A committee was appointed to make a survey and report on the question: "Can and by what means may the University of Missouri School of Medicine further its ideals of better training and supplying physicians to the State of Missouri?"

The By-Laws were amended creating a standing Committee on Constitution and By-Laws. Another amendment made the Council the executive body of the House of Delegates between annual sessions. A Committee on the Control of Syphilis was authorized. The State was redistricted, and the Councilor Districts reduced to ten. The American Medical Association was requested to establish a Council on Medical Ethics and Economics. Quite a number of minor matters were introduced and approved. Most of these were not adopted.

Norman F. Miller, Ann Arbor, Professor of Obstetrics and Gynecology in the University of Michigan School of Medicine, spoke at the dinner meeting of the Committee on Maternal Welfare.

Dudley S. Conley, Columbia, was installed as President, and Jefferson City was selected for the place of the 1938 meeting.

The election of officers resulted as follows: President-Elect, B. W. Hays, Jackson; Vice Presidents, W. A. Bloom, Fayette; E. L. Johnson, Concordia; Samuel Mitchell, Malden; Secretary-Editor, E. J. Goodwin, St. Louis; Assistant Secretary and Business Manager, Mr. E. H. Bartelsmeyer, St. Louis; Treasurer, John R. Caulk, St. Louis.



B. W. Hays

The following members were elected to represent the newly redistricted Councilor Districts for the next year: 1st District, A. S. Bristow, Princeton; 2nd District, H. B. Goodrich, Hannibal; 3rd District, Curtis H. Lohr, St. Louis; 4th District, R. B. Denny, Creve Coeur; 5th District, M. Pinson Neal, Columbia, Chairman; 6th District, A. J. Campbell, Sedalia; 7th District, E. P. Heller, Kansas City; 8th District, H. L. Kerr, Crane, Vice-Chairman; 9th District, W. H. Breuer, St. James; 10th District, A. H. Marshall, Charleston.

E. J. GOODWIN, *Secretary.*

1938

The House of Delegates was called to order by President Dudley S. Conley, at 10:00 a. m., on Monday, May 2, 1938, in the House of Representatives Chamber of the State Capitol, Jefferson City. The Constitution was amended so that the delegates present from each Councilor District shall meet on the third day of the Annual Session and elect a Councilor for their respective districts, as the terms of their Councilors expire. An amendment creating the offices of Speaker and Vice Speaker of the House of Delegates failed of adoption.

Recommendation for the appointment of committees on Conservation of Eyesight, Automobile Accidents and Rural Medicine was approved. Resolutions were passed regarding introduction in the State Legislature of bills on basic science law, antenuptial examinations, integration of the medical profession and the restriction of the use of harmful drugs. The inclusion of accredited courses in anatomy and physiology in the public schools was recommended by the passage of a resolution. Six hundred seventy-four members were in attendance, a larger number registering than at any previous meeting of the Association.

The special Committee on the University of Missouri School of Medicine presented a long analytical report which was adopted but accomplished practically nothing. Dr. Palmer Findley, Omaha, Nebraska, was the guest speaker at the dinner of the Committee on Maternal Welfare. George M. Curtis, Columbus, Ohio, spoke at the General Meeting on "The Iodine Metabolism in Thyroid Disease." J. H. J. Upham, President of the American Medical Association, spoke on "The Clinical Significance of Gastric Motility in the Human Subject."

The address of the President, Dudley S. Conley, was entitled "History of the Missouri State Medical Association." It was an excellent essay and still makes good reading.

Excelsior Springs was selected for the next meeting place, and B. W. Hays was installed as president.

The following officers were elected: President-Elect James R. McVay, Kansas City; Vice Presidents, D. C. McCraw, Bolivar; L. H. Fuson, St. Joseph; C. A. W. Zimmermann, Cape Girardeau; Secretary-Editor, E. J. Goodwin, St. Louis; Assist Secretary and Business Manager, Mr. E. H. Bartelsmeyer, St. Louis; Treasurer, Ralph L. Thompson, St. Louis.



James R. McVay

The Council for the next year consisted of the following members: 1st District, A. S. Bristow, Princeton; 2nd District, H. B. Goodrich, Hannibal; 3rd District, Curtis H. Lohr, St. Louis, Chairman; 4th District, R. B. Denny, Creve Coeur; 5th District, W. A. Bloom, Fayette; 6th District, A. J. Campbell, Sedalia; 7th District, E. P. Heller, Kansas City; 8th District, H. L. Kerr, Crane; 9th District, E. C. Bohrer, West Plains; 10th District, E. J. Nienstedt, Sikeston.

E. J. GOODWIN, *Secretary.*

1939

At 9:45 a. m., on April 10, 1939, in the Ballroom of the Elms Hotel, Excelsior Springs, the House of Delegates was called to order by Curtis H. Lohr, Chairman of the Council. Dr. Lohr introduced C. A. W. Zimmermann, Vice President, whom the Council had chosen in a special session on April 9 to preside in absence of the President, B. W. Hays, who was unable to attend because of illness.

A telegram of greeting with best wishes for a speedy recovery was voted to Dr. Hays upon motion by R. Emmet Kane.

This was a most important meeting. The committee reports revealed exceptional activity and service. I. Mims Gage, New Orleans, Louisiana; J. C. Litzenberg, Minneapolis, Minnesota; Warren H. Cole, Chicago, Illinois; Sumner L. Koch, Chicago, Illinois; Fred M. Smith, Iowa City, Iowa; B. L. Kirklin, Rochester, Minnesota; William Malamud, Iowa City, Iowa; A. W. Adson, Rochester, Minnesota, and Walter M. Whitaker, Quincy, Illinois, presented papers at the Scientific Sessions. Resolutions favoring a new Army Medical Library and Building at Washington, D. C., opposing the admission of medical cultists to state hospitals, and opposing the Federal Social Security Bill were approved.

The Council was authorized to employ an Executive Secretary and Business Manager. The Constitution and By-Laws also were amended to give to all officers the rights of all delegates in the House of Delegates but not the right to vote, except in the election of officers. The number of standing committees was increased to thirteen and the number

of members of each committee increased from three to five. The election of a Speaker and Vice Speaker of the House of Delegates was authorized. This was the first meeting in more than forty years that E. J. Goodwin failed to attend.

Joplin was selected as the place of the next meeting, and James R. McVay was installed as President.

The election of officers resulted as follows: President-Elect, Cyrus E. Burford, St. Louis; Vice Presidents, E. S. Smith, Kirksville; Guy D. Callaway, Springfield; J. E. Baird, Excelsior Springs. E. J. Goodwin having requested to be relieved of the responsibilities of the office and having been elected Secretary-Editor Emeritus for life, Mr. E. H. Bartelsmeyer, St. Louis, was elected Executive Secretary and Business Manager; Treasurer, R. L. Thompson, St. Louis.



Cyrus E. Burford

The Council again consisted of the following members: 1st District, A. S. Bristow, Princeton; 2nd District, H. B. Goodrich, Hannibal; 3rd District, Curtis H. Lohr, St. Louis, Chairman; 4th District, R. B. Denny, Creve Coeur; 5th District, W. A. Bloom, Fayette; 6th District, A. J. Campbell, Sedalia; 7th District, E. P. Heller, Kansas City, Vice-Chairman; 8th District, H. L. Kerr, Crane; 9th District, E. C. Bohrer, West Plains; 10th District, E. J. Nienstedt, Sikeston.

1940

The House of Delegates was called to order by the President, James R. McVay, on the Roof of Hotel Connor, Joplin, at 10:00 a. m., on April 29. M. Pinson Neal, Columbia, was elected Speaker and E. L. Spence, Kennett, Vice Speaker, who then took charge of the meeting. Carl F. Vohs, St. Louis, presented a splendid report for the Committee on Medical Economics. In it he reported on both the Kansas City and St. Louis plans for group hospitalization, and presented its economic program for 1940. Among his propositions was the "Missouri Plan for the Medical, Dental and Hospital Care for All the People." The Committee on Constitution and By-Laws presented an entirely new and shortened Constitution, which was freely discussed and referred back to the Committee and laid over until the next Annual Session.

A dinner in honor of the Past Presidents was held on the evening of April 29, at which the following distinguished guests were introduced: R. M. James, President, Jasper County Medical Society; Joseph W. Gale, Madison, Wisconsin; George W. Post, Chicago; Alfred I. Folsom, Dallas; Cyrus C. Sturgis, Ann Arbor; Mr. E. H. Bartelsmeyer, Executive Secretary; Mrs. Paul F. Cole, Springfield, President of the Woman's Auxiliary; Cyrus E. Burford, St. Louis, President-Elect; Mr. C. P. Loranz, Birmingham, Secretary, Southern Medical Association; Quitman U. Newell, St. Louis, President-Elect, Southern Medical Association. Thirteen Past Presidents were in attendance. Alphonse McMahon, St. Louis, Vice President, American Medical Association, spoke on "The Responsibilities and Aims of the American Medical Profession."

H. N. Sanford, Chicago; Louis A. Buie, Rochester; John H. Musser, New Orleans, and E. D. Plass, Iowa City, as well as Drs. Gale, Post, Folsom and Sturgis, spoke at the scientific meetings.

Cyrus E. Burford was installed as President, and St. Louis was selected as the place for the next meeting.

The election of officers resulted as follows: President-Elect, R. B. Denny, Creve Coeur; Vice Presidents, L. J. Schofield, Warrensburg; William J. Stewart, Columbia; Paul W. Walker, Joplin, Treasurer, Ralph L. Thompson, St. Louis; Editor, Walter Baumgarten, St. Louis.



R. B. Denny

After the election of Councilors for the odd numbered districts by the delegates from those districts and for one resignation, the members of the Council for the next year were the following: 1st District, A. S. Bristow, Princeton; 2nd District, H. B. Goodrich, Hannibal; 3rd District, Curtis H. Lohr, St. Louis, Chairman; 4th District, C. E. Fallet, DeSoto; 5th District, W. A. Bloom, Fayette, Vice Chairman; 6th District, A. J. Campbell, Sedalia; 7th District, F. I. Wilson, Kansas City; 8th District, H. L. Kerr, Crane; 9th District, E. C. Bohrer, West Plains; 10th District, E. J. Nienstedt, Sikeston.

1941

The House of Delegates was called to order by President Cyrus E. Burford on April 28, 1941, at 9:30 a. m., in the Crystal Room, Hotel Jefferson, St. Louis. Ralph E. Duncan, Kansas City, was elected Speaker of the House, and W. T. Elam, St. Joseph, Vice Speaker. The attendance was the largest in the history of the Association. At the dinner in honor of the Past Presidents, Rev. Alphonse M. Schwitalla, Dean of St. Louis University School of Medicine, gave a word of welcome from the two medical schools in St. Louis. Morris Fishbein, Editor of *The Journal of the American Medical Association,* delivered an address on "American Medicine Prepares."

Russell L. Cecil, New York; R. G. Spurling, Louisville; Clyde L. Deming, New Haven; Paul B. Magnuson, Chicago; Jean M. Stevenson, Cincinnati; Samuel A. Cosgrove, Jersey City; Walter C. Alvarez, Rochester; Lawrence S. Fallis, Detroit; A. E. Bennett, Omaha; Harrison L. Flippin, Philadelphia, spoke at the scientific sessions. There were more scientific and more commercial exhibits than at any previous meeting.

A suitable bronze plaque with an appropriate inscription to the memory of E. J. Goodwin was ordered erected in the headquarters of the Associa-

tion. It is sad to relate that no other mention of the death of this great master of efficiency in secretarial service and editorship was made at the meeting. The Executive Secretary reported it to the Council. (With all his faults, E. J. Goodwin was a great contributor to medical organization.)

R. B. Denny, Creve Coeur, was installed as President, and Kansas City was selected as the place for the 1942 meeting.

The election of officers resulted as follows: President-Elect, Homer L. Kerr, Crane; Vice Presidents, Harry L. Jones, Kansas City; B. K. Stumberg, St. Charles; M. D. Overholser, Columbia; Treasurer, Ralph L. Thompson, St. Louis; Editor, Walter Baumgarten, St. Louis; Executive Secretary, Mr. E. H. Bartelsmeyer, St. Louis.



H. L. Kerr

The terms of the Councilors for the even numbered districts having expired, the election by the delegates from those districts left the Council with the following members: 1st District, A. S. Bristow, Princeton; 2nd District, H. B. Goodrich, Hannibal; 3rd District, Curtis H. Lohr, St. Louis, Chairman; 4th District, C. E. Fallet, De Soto; 5th District, W. A. Bloom, Fayette; 6th District, A. J. Campbell, Sedalia; 7th District, F. I. Wilson, Kansas City; 8th District, W. Wallis Smith, Springfield; 9th District, E. C. Bohrer, West Plains; 10th District, E. J. Nienstedt, Sikeston.

1942

The House of Delegates was called to order at 9:30 a. m., on April 27, in the Municipal Auditorium, Kansas City, by Vice President Harry L. Jones. Because of illness, the President, R. B. Denny, Creve Coeur, was unable to be present. W. F. Francka, Hannibal, was elected Speaker of the House and John Green, St. Louis, Vice Speaker.

Harry L. Jones read the President's Message to the House of Delegates. A resolution condemning the periodical examination of prostitutes was adopted. A resolution raising the annual dues from $8.00 to $12.00 was referred to the Committee on Constitution and By-Laws. A resolution commending Colonel George F. Lull, M.C., U. S. A. (afterward Major General and now Secretary of the American Medical Association), and Surgeon General James Magee for Colonel Lull's splendid address on "The Medical Officer in Our Wartime Army" was adopted.

By resolution the Council was empowered to remit the dues of members while in the armed forces of the United States, provided the component county society had taken a similar action.

A resolution urging a change in the Missouri law to include rheumatic heart disease in the definition of a "crippled child" was adopted after a lengthy discussion by six members as to whether or not this action would endanger the present law.

The banquet in honor of the Past Presidents was held in the Ballroom of the Hotel President. Fifteen Past Presidents attended and heard Colonel Lull deliver the address mentioned previously.

The following invited guests spoke one or more times at the scientific meetings: K. W. Brimmer, Washington, D. C.; Waltman Walters, Rochester; Willard R. Cooke, Galveston; George Hermann, Galveston; Russell L. Haden, Cleveland; Cobb Pilcher, Nashville; Joe Vincent Meigs, Boston; Hobart A. Reimann, Philadelphia; Arthur Purdy Stout, New York; Irvine H. Page, Indianapolis; Oliver Cope, Boston, and Donald E. Cummings, Denver. By this time the custom of inviting guests from localities and cities in other states had met with general approval and has since been continued.

Homer L. Kerr, Crane, was installed as President and St. Louis was selected as the place for the next meeting.

The election of officers resulted as follows: President-Elect, Andrew W. McAlester, Jr., Kansas City; Vice-Presidents, R. M. James, Joplin; E. J. Schisler, St. Louis; G. A. Lau, St. Joseph; Treasurer, Ralph L. Thompson, St. Louis; Executive Secretary, Mr. E. H. Bartelsmeyer, St. Louis; Assistant Editor, Miss Helen Penn, St. Louis.



A. W. McAlester, Jr.

After the reelection of the Councilors for the odd numbered districts, the Council was again composed of the following members: 1st District, A. S. Bristow, Princeton; 2nd District, H. B. Goodrich, Hannibal; 3rd District, Curtis H. Lohr, St. Louis, Chairman; 4th District, C. E. Fallet, DeSoto; 5th District, W. A. Bloom, Fayette, Vice Chairman; 6th District, A. J. Campbell, Sedalia; 7th District, F. I. Wilson, Kansas City; 8th District, W. Wallis Smith, Springfield; 9th District, E. C. Bohrer, West Plains; 10th District, E. J. Nienstedt, Sikeston; Mr. E. H. Bartelsmeyer, Secretary.

By this time it was generally evident that a Council of ten members functions more efficiently and the Councilors took their duties more seriously than when there were smaller districts and many more councilors. Where formerly there was seldom, if ever, a full attendance, almost all of the meetings now find all councilors present.

1943

The meeting was necessarily short because World War II was raging. The scientific program was limited to a morning session and another during the afternoon of the same day, to which members from different parts of the state contributed to make it definitely interesting, valuable, practical and instructive. President Homer L. Kerr and Vice President R. M. James presided at these sessions.

The House of Delegates was called to order in the Crystal Room, Jefferson Hotel, St. Louis, at

2:00 p. m., on Sunday, April 18, by President Homer L. Kerr.

W. F. Francka, Hannibal, was reelected Speaker of the House and John Green, St. Louis, was reelected Vice Speaker. The Speaker took charge.

In his two short messages the President recommended that the term of the Speaker of the House be limited, that an Executive Secretary be employed, and that the delegates work out the problems before the House rapidly but do the work thoroughly. This message was the shortest but one of the best of its kind.

The report of the Committee on Public Policy is particularly noteworthy. After explaining its accomplishments with the State Legislature in detail and praising the work of Drs. J. A. Gray and E. J. Lee, who were members of the House of Representatives, Morris Simpson, Kansas City, closed with: "My best advice in this matter is that we support these men who show they are efficient by educating your legislators as to the meaning of scientific medicine, and then leave to the natural evolution of scientific medicine in time of war, with the certainty that, whatever comes, there will always be a place for the scientific practicing physician."

The Committee on Medical Economics also rendered a good report.

Among the amendments to the Constitution and By-Laws was a provision that the Committee on Nominations should include a Speaker and Vice Speaker of the House of Delegates on its slate.

The Committee on Public Policy was changed to Committee on Public Policy and Public Relations. The Committee on Maternal Welfare and Infant Care was divided into two committees, to make one on Maternal Welfare and one on Infant Care.



Curtis H. Lohr

An assessment of $4.00 for the year 1944 was voted.

There were thirty-one technical exhibits.

Morris Fishbein, Chicago, spoke on "Plans for Postwar Medical Service" at the banquet in honor of Past Presidents.

A. W. McAlester, Jr., Kansas City, was installed as President and Kansas City chosen the place of the next annual meeting.

The election of officers resulted as follows: President-Elect, Lt. Col. Curtis H. Lohr, St. Louis; Vice-Presidents, Dudley A. Robnett, Columbia; Buford G. Hamilton, Kansas City; J. I. Byrne, St. Joseph; Secretary-Editor, R. L. Thompson, St. Louis; Treasurer, C. E. Hyndman, St. Louis; Speaker of the House, W. F. Francka, Hannibal; Vice Speaker, John Green, St. Louis; Assistant Editor, Miss Helen Penn, St. Louis; Executive Secretary, Mr. Raymond McIntyre, St. Louis; Consultant, Mr. E. H. Bartelsmeyer, St. Louis.

The election of Councilors for the even numbered districts and appointments to the vacancies caused by resignations gave the Council the following members: 1st District, A. S. Bristow, Princeton; 2nd District, H. B. Goodrich, Hannibal, Vice Chairman; 3rd District, Joseph C. Peden, St. Louis; 4th District, R. B. Denny, Creve Coeur; 5th District, W. A. Bloom, Fayette, Chairman; 6th District, R. W. Kennedy, Marshall; 7th District, H. L. Mantz, Kansas City; 8th District, W. Wallis Smith, Springfield; 9th District, E. C. Bohrer, West Plains; 10th District, Paul Baldwin, Kennett.

1944

The House of Delegates convened at 2:00 p. m., on Sunday, April 23, in the Little Theatre, Municipal Auditorium, Kansas City, with Speaker W. F. Francka, presiding.

In his message to the House, President A. W. McAlester, Jr., called attention to the fact that the first medical officer to make the supreme sacrifice in World War I was William T. Fitzsimmons, of Kansas City, and the first to die out of this country in World War II, then raging, was Andrew H. Panettierre, of St. Joseph, formerly a member of the Jackson County Medical Society. He praised the work of the Committee on Postwar Planning, of which M. Pinson Neal, Columbia, was chairman, with Robert Mueller, Ira H. Lockwood and James R. McVay as his associates. He said it might be called a "master committee." He also mentioned that the bill to appropriate funds so that the Missouri University School of Medicine would again graduate Doctors of Medicine was lost in the legislature by only one vote.



A. S. Bristow

Other committees which reflected extraordinarily efficient activity in their reports were the committees on Medical Education and Public Welfare, on Public Policy and Public Relations, Medical Economics and Infant Care. Not that the other committees were idle, but these stood out more prominently. The report of the Council showed an unprecedented amount of work done by that body during the year.

A four year course in medicine in the University of Missouri again was urged.

Rev. Alphonse M. Schwitalla, St. Louis, and Mr. John M. Pratt, Chicago, spoke at the banquet in honor of Past Presidents which was held at the Muehlebach Hotel.

Several amendments to the By-Laws were adopted, which changes only improved and clarified the provisions as they were previously. An assessment of $7.00 was voted.

Col. John T. King, M.C., U. S. A., and Henry K. Ransom, Ann Arbor, Michigan, contributed to the scientific program, which was good despite the war.

St. Louis was chosen for the next Annual Session and Curtis H. Lohr was installed as President of the Association *in absentia,* he having left the

country with Base Hospital No. 70 to join the fighting forces in North Africa.

The election of officers resulted as follows: President-Elect, A. S. Bristow, Princeton; Vice Presidents, Robert Mueller, St. Louis; F. T. H'Doubler, Springfield; W. L. Brandon, Poplar Bluff; Speaker of the House of Delegates, E. J. Schisler, St. Louis; Vice Speaker, Stanley P. Howard, Jefferson City; Secretary-Editor, Ralph L. Thompson, St. Louis; Treasurer, C. E. Hyndman, St. Louis; Assistant Editor and Business Manager, Miss Helen Penn, St. Louis. The Council selected Robert Mueller, Vice President, to serve during the absence of the President.

After the delegates from each odd numbered district elected Councilors for those whose terms had expired, the Council was composed of the following: 1st District, H. E. Petersen, St. Joseph; 2nd District, H. B. Goodrich, Hannibal, Vice Chairman; 3rd District, J. W. Thompson, St. Louis; 4th District, R. B. Denny, Creve Coeur; 5th District, W. A. Bloom, Fayette, Chairman; 6th District, R. W. Kennedy, Marshall; 7th District, H. L. Mantz, Kansas City; 8th District, W. Wallis Smith, Springfield; 9th District, E. C. Bohrer, West Plains; 10th District, Paul Baldwin, Kennett.

1945

Although plans had been practically completed for the 1945 Annual Session to be held in St. Louis on April 22, 23 and 24, this was cancelled in compliance with the rulings of the Office of Defense Transportation. The Council, therefore, found it necessary to transact some of the business of the House of Delegates. It met on March 3, 1945, for this purpose, taking no more of that authority than was necessary and basing this on Article VI of the Constitution which states: "The Council shall have full authority and power of the House of Delegates between Annual Sessions, unless the House of Delegates shall be called into session as provided in the Constitution and By-Laws." It was decided that no new officers be elected, and that the present officers should serve until the House of Delegates could elect new officers. This was according to the provision in Article IX of the Constitution. A. S. Bristow was installed as President at this meeting of the Council to succeed Col. Curtis L. Lohr, of the Seventieth General U. S. Army Hospital. Thus the Council decided that all officers remain in office until the next Annual Session was held. It also was decided that M. Pinson Neal be asked to continue with the work of the Postwar Planning Committee.

Mr. Thomas W. Parry, Jr., who had been engaged as Public Relations Councilor, suggested that the material obtained for the Postwar Planning Committee be put in available form. Mr. Raymond McIntyre, who had entered service, was replaced by Mr. T. R. O'Brien as Executive Secretary on June 1, 1944, who reported on the work of the Community Health League.

Robert A. Moore reported that a medical examiner to replace the outmoded coroner's office was left out of the new State Constitution. The Council endorsed this plan. It was recommended that the Executive Secretary be also Executive Secretary of Missouri Medical Service. The four year medical course in the University of Missouri again came in for its share of discussion.

April 21-22, 1945

It was resolved by the Council that the dues of members returning from military service be remitted for the first year. Col. Curtis H. Lohr attended the latter part of the meeting and presented the gavel at the installation of A. S. Bristow as President.



Howard B. Goodrich

The Council heard reports of committees and transacted considerable routine business.

W. A. Bloom, Fayette, and H. B. Goodrich, Hannibal, were reelected Chairman and Vice Chairman of the Council, respectively.

June 23-24, 1945

Lt. Raymond McIntyre, U.S.N.R., attended this meeting while on leave and was greeted by the Councilors.

All the work of the Council during these two days was of a routine nature.

1946

The House of Delegates was called to order at 2:00 p. m., Sunday, March 24, in the Crystal Room, Jefferson Hotel, by President A. S. Bristow. The Speaker of the House, E. J. Schisler, St. Louis, being absent because of the recent death of his wife, and the Vice Speaker having moved from the state, the President asked the pleasure of the House concerning the election of a Speaker pro tem. Former Speaker W. F. Francka, Hannibal, was elected Speaker pro tem and took charge at once.

The Committee on Medical Economics presented a lengthy report which showed that considerable progress in medical service had been made. The Chairman, Carl F. Vohs, supplemented the report by a verbal extemporaneous statement. The reports of the Council and of the Committee on Postwar Planning naturally were unusually long.

The By-Laws were amended so that a member who has served in the Armed Forces would have his dues and assessment remitted for one year after his return. He might elect this abatement either in 1946 or 1947.

The work of the Community Health League was commended.

A resolution concerning modern health services under a trained and experienced state health officer was adopted, as was another for maintaining free enterprise and the prevention of the political domination of the profession of medicine. There also was a resolution approving the work of the National Physicians Committee. The Child Health Study by the state chairman of the American Academy of Pediatrics was approved.

Burton E. Hamilton, Boston, spoke at the dinner meeting of the Committee on Cardiac Diseases and at the Maternal Welfare Luncheon. Governor Phil M. Donnelly spoke at the banquet in honor of Past Presidents.

Jay Arthur Myers, Minneapolis; Paul D. White, Boston, and Col. J. C. Harding, M.C., U. S. A., Washington, D. C., spoke at the scientific meetings.

Howard B. Goodrich, Hannibal, was elected President and installed immediately. The other officers elected were: President-Elect, Morris B. Simpson, Kansas City; Vice Presidents, Daniel L. Sexton, St. Louis; Winfred L. Post, Joplin; G. T. Bloomer, St. Joseph; Speaker of the House of Delegates, Ralph E. Duncan, Kansas City; Vice Speaker, W. S. Sewell, Springfield; Treasurer, C. E. Hyndman, St. Louis; Editor, Ralph L. Thompson, St. Louis; Assistant Editor, Miss Helen Penn, St. Louis; Executive Secretary, Mr. T. R. O'Brien, St. Louis; Field Secretary, Mr. Raymond McIntyre, St. Louis.



Morris B. Simpson

The Executive Secretary announced that the election of Councilors according to the By-Laws and the standing rule governing this procedure resulted in the following members of the Council for the next year: 1st District, H. E. Petersen, St. Joseph; 2nd District, W. F. Francka, Hannibal; 3rd District, J. W. Thompson, St. Louis, Chairman; 4th District, Otto W. Koch, Clayton; 5th District, J. F. Jolley, Mexico; 6th District, R. W. Kennedy, Marshall; 7th District, C. Edgar Virden, Kansas City; 8th District, W. Wallis Smith, Springfield, Vice Chairman; 9th District, E. C. Bohrer, West Plains; 10th District, Paul Baldwin, Kennett.

An invitation to hold the next Annual Session in Kansas City was accepted by the House of Delegates

1947

The House of Delegates was called to order at 9:00 a. m., on March 30, in the Little Theatre, Municipal Auditorium, Kansas City, by the Speaker, Ralph E. Duncan. There were several amendments to the By-Laws that were, for the most part, only clarification of the language. One provided that "no Councilor shall be eligible for the position of Delegate to the House of Delegates during his term of office as Councilor." The assessment of $7.00 was continued.

A resolution to create a Section on Gynecology and Obstetrics failed of adoption. The Committee on Cancer recommended the fullest cooperation with the American Cancer Society and also recommended cancer symposia and tumor clinical programs in rural sections. This was adopted. The nine point program to improve industrial health, recommended by the committee, was adopted. The Committee on Medical Economics submitted another elaborate report

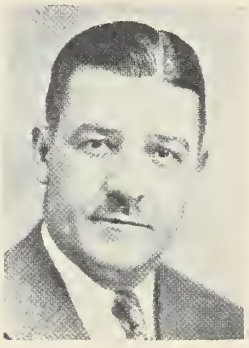
At the Cardiac Disease luncheon, plans for the organization of the Missouri State Heart Association were announced.

George F. Lull, Secretary of the American Medical Association, addressed the House of Delegates and spoke at the banquet in honor of Past Presidents in the Ballroom of Hotel President on "The Present Status of State Medicine." At this function, each of the Past Presidents who was in attendance was given a gold watch key bearing the seal of the Association, and M. D. Overholser, Columbia, entertained with his tricks of magic.

Herman W. Johnson, Houston, Texas; Arthur M. Olson, Rochester; Robert Follinger, Columbus, Ohio; William A. Altemeier, Cincinnati; Donald R. Nichols, Rochester; Wendell N. Griffith, Ph.D., St. Louis; William S. Middleton, Madison, and Garfield G. Duncan, Philadelphia, spoke at the scientific sessions by invitation.

Morris B. Simpson, Kansas City, was installed as President, and St. Louis was chosen as the place for the next meeting.

The election of officers resulted as follows: President-Elect, Robert Mueller, St. Louis; Vice Presidents, O. T. Blanke, Joplin; S. M. Bailey, Malden; Donald M. Dowell, Chillicothe; Speaker of the House of Delegates, Ralph E. Duncan, Kansas City; Vice Speaker, W. S. Sewell, Springfield; Treasurer, C. E. Hyndman, St. Louis; Secretary, W. A. Bloom, Fayette; Editor, G. V. Stryker, St. Louis; Assistant Editor, Miss Helen Penn, St. Louis; Executive Secretary, Mr. T. R. O'Brien, St. Louis; Field Secretary, Mr. Raymond McIntyre, St. Louis.



Robert Mueller

The delegates from the even numbered districts each elected Councilors. This left the Council with the following members: 1st District, H. E. Petersen, St. Joseph; 2nd District, W. F. Francka, Hannibal; 3rd District, J. W. Thompson, St. Louis, Chairman; 4th District, Otto W. Koch, Clayton; 5th District, J. F. Jolley, Mexico; 6th District, R. W. Kennedy, Marshall; 7th District, C. Edgar Virden, Kansas City; 8th District, W. Wallis Smith, Springfield; 9th District, E. C. Bohrer, West Plains; 10th District, Frank W. Hall, Cape Girardeau.

1948

The House of Delegates was called to order at 2:00 p. m., Sunday, March 14, in the Crystal Room, Jefferson Hotel, St. Louis, by Speaker Ralph E. Duncan. The Rev. Charles F. Rehkoff, Pastor of St. John's Episcopal Church, delivered the invocation. The Honorable Henry S. Caulfield, Director of Public Welfare of St. Louis and former Governor of the State of Missouri, represented Mayor A. P. Kaufman and delivered an address of welcome.

The Speaker then presented a five point "Procedure for the House of Delegates, 1948" to expedite the work of the House. This was tacitly approved. The By-Laws were amended to increase the number of standing committees to eighteen, and the annual dues were raised to $15.00. Resolutions

of thanks to United States Senators Forrest C. Donnell and James P. Kem were adopted. A resolution was adopted wishing the State Health Commissioner, Robert M. James, a speedy recovery from his illness.

The Committee on Medical Education and Public Welfare submitted a resolution urging the establishing of a four year State University Medical School at Kansas City and another sponsoring a State Health Council. Both were adopted.

A resolution condemning the practice of medicine for profit by hospitals and medical schools was adopted.

Edward L. Bortz, President of the American Medical Association, spoke on "Medicine's New Frontiers" at the banquet in honor of Past Presidents, in the Gold Room of the Jefferson Hotel. William F. Mengert, Dallas; Bayard T. Horton, Rochester; Tom E. Smith, Dallas; Charles G. Johnson, Detroit, Lewis S. Jordan, Granite Falls, Minnesota, and Henry T. Ricketts, Chicago, contributed to the scientific program by invitation.

There were eleven scientific exhibits and sixty technical exhibits.

Robert Mueller was installed as President, and Kansas City was selected for the place of the next annual sesison.

The election of officers resulted as follows: President-Elect, W. Wallis Smith, Springfield; Vice Presidents, B. E. DeTar, Joplin; D. P. Dyer, Sedalia; P. W. Jennings, Canton; Treasurer, C. E. Hyndman, St. Louis; Secretary, W. A. Bloom, Fayette; Editor, G. V. Stryker, St. Louis; Assistant Editor, Miss Helen Penn, St. Louis; Executive Secretary, Mr. T. R. O'Brien, St. Louis; Field Secretary, Mr. Raymond McIntyre, St. Louis; Speaker of the House of Delegates, Ralph E. Duncan, Kansas City; Vice Speaker, F. T. H'Doubler, Springfield.



Wallis Smith

The delegates from the odd numbered districts elected Councilors for their respective districts, and a vacancy caused by a resignation was filled, so the Council for the next year was composed of the following members: 1st District, H. E. Petersen, St. Joseph; 2nd District, W. F. Francka, Hannibal; 3rd District, J. W. Thompson, St. Louis, Chairman; 4th District, Otto W. Koch, Clayton; 5th District, J. F. Jolley, Mexico; 6th District R. W. Kennedy, Marshall; 7th District, C. Edgar Virden, Kansas City; 8th District, W. S. Sewell, Springfield; 9th District, E. C. Bohrer, West Plains, Vice Chairman; 10th District, Frank W. Hall, Cape Girardeau.

1949

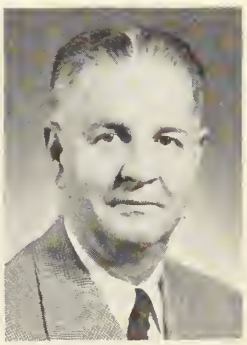
The House of Delegates was called to order in the Little Theatre, Municipal Auditorium, Kansas City, at 2:00 p. m., Sunday, March 27, by Speaker Ralph E. Duncan. The Rev. Warren Grafton, Pastor of the Country Club Christian Church, delivered the invocation. Honorable William E. Kemp, Mayor of Kansas City, delivered an address of welcome. The Speaker announced the personnel of the Reference Committees and with the consent of the House added three more, namely, Committee on Scientific Exhibits, Committee on Technical Exhibits and Committee on Reports of Officers, Council and Standing Committees. He then gave the rules of "Procedure to the House of Delegates."

After the messages of the President and President-Elect and the report of the Executive Secretary, Miss Virginia Harrison, from the Missouri State Board of Nurses Examiners, addressed the House.

The Report of the Committee on Postgraduate Course was quite extensive and contained a number of practical suggestions which were approved.

The report of the Committee on Rural Medical Practice revealed its excellent work in introducing interns and residents to rural practice. It also contained, among other matters, the details of the formal organization of the Missouri Health Council. The report of the Council of the Association was quite long and showed greater activity than ever before in the service for the Association.

A resolution endorsing the assessment of $25.00 by the American Medical Association and urging the members to comply with it was adopted.



W. A. Bloom

The Reference Committee on Constitution and By-Laws recommended that the present Constitution be rescinded at the next Annual Session, provided that the By-Laws are amended by that time, and that the legal procedures necessary for amendments to the Charter be completed as soon as possible.

Another resolution against rebates was adopted, and it was resolved that the Council prepare and publish a "Handbook" of the Association, containing a directory and other suitable material.

A resolution recommending legislation for the control of Bang's disease was adopted.

A. C. Ivy, Chicago, spoke at the banquet in honor of Past Presidents on "The Dangers of State Medicine," at which the "50 Year Pin," which is really a button indicating fifty years of medical practice, was presented to the senior Past President, Robert E. Schlueter, representing the 239 fellow members who are entitled to this insignia.

Besides Dr. Ivy, Joseph T. Roberts, Batavia, New York; Paul S. Barker, Ann Arbor; Winfred Overholser, Washington, D. C.; Howard E. Mahorner, New Orleans; Francis M. Woods, Brookline, Massachusetts; Emmet B. Bay, Chicago; W. W. Spink, Minneapolis; Arthur R. Colwell, Evanston; Frank R. Lock, Winston-Salem, North Carolina, and J. Dewey Bisgard, Omaha, spoke at the scientific meetings by invitation.

W. Wallis Smith, Springfield, was installed as President, and it was decided to celebrate the One Hundredth Anniversary of the Association at St. Louis in 1950.

The election of officers resulted as follows: President-Elect, W. A. Bloom, Fayette; Vice Presidents, J. C. Creech, Troy; E. J. McIntyre, Carthage; H. M. Henrickson, Poplar Bluff; Speaker of the House of Delegates, F. T. H'Doubler, Springfield; Vice Speaker, Victor E. Scherman, St. Louis; Secretary, H. E. Petersen, St. Joseph; Treasurer, C. E. Hyndman, St. Louis; Editor, Raymond O. Muether, St. Louis; Assistant Editor, Miss Helen Penn, St. Louis; Field Secretary, Mr. Raymond McIntyre, St. Louis; Executive Secretary, Mr. T. R. O'Brien, St. Louis.

After the election of Councilors for the even numbered districts by the delegates from their respective districts, the members of the Council are: 1st District, Donald M. Dowell, Chillicothe; 2nd District, W. F. Francka, Hannibal; 3rd District, J. W. Thompson, St. Louis, Chairman; 4th District, Otto W. Koch, Clayton; 5th District, J. F. Jolley, Mexico; 6th District, R. W. Kennedy, Marshall; 7th District, C. Edgar Virden, Kansas City; 8th District, W. S. Sewell, Springfield; 9th District, E. C. Bohrer, West Plains, Vice Chairman; 10th District, Frank W. Hall, Cape Girardeau.



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PRESIDENT'S PAGE

Robert E. Schlueter, M.D., St. Louis, Past President of the Association and one of the Delegates to the American Medical Association, devoted many months to the writing of the "History of the Missouri State Medical Association, 1850-1950," which appears in this issue of The Journal.



Our hats are off to our friend and fellow member, "Bob" Schlueter, for his outstanding achievement. His kindly personality and his willingness to help has endeared him to all who know him. He has served the profession well in whatever task was assigned to him. Now he has written this history which will bring to all many happy remembrances of the activities of the Association and our predecessors and fellow members.



Editorials

"HISTORY OF THE MISSOURI STATE MEDICAL ASSOCIATION"

When plans for celebrating the centennial of the Association were being considered, a history of the Association immediately came to the minds of all. The Council quite naturally turned to Robert E. Schlueter, M.D., St. Louis, with the request that he prepare a history for the occasion. Dr. Schlueter, being interested and well versed in medical history and a student of history and literature as well as having had continuous contact with medicine and the Association for many years made him the natural selection. As well as being well qualified to write the history, Dr. Schlueter is the oldest living Past President of the Association; again appropriate that he should be asked to write the history. He was elected President in 1917 but could not be present to serve as President in 1918 because he was serving as a Major, M. C., U. S. A., at the time. Dr. Schlueter has served as Delegate to the American Medical Association for several years.

The task was not easy as there had been no effort through the years to maintain such a record of the Association. Dr. Schlueter, uncomplainingly, spent many hours seeking out from many sources the information used in the History. Dr. Schlueter terms the History a "practical summary of evidently apparent essentials" and it does, indeed, give the essential record of the Association.

While the "History of the Missouri State Medical Association" was written for distribution at the annual session commemorating the centennial of the Association, it is reprinted in THE JOURNAL that all members may have opportunity to read and preserve the History.

HEALTH AND LONGEVITY AT THE MID-CENTURY

The efforts during the last half century against preventable disease and premature deaths has been extraordinarily successful in this country. The gains reflect the advances in medical science and practice, the increase in the facilities for the care of the sick, improvement in sanitation, the measures taken against occupational hazards and the rise in the standard of living. The Statistical Bulletin of the Metropolitan Life Insurance Company gives the following data on the present status.

The death rate among insurees reached an all-time low in 1949. The rate of 6.4 per 1,000 was 2 per cent below the previous minimum recorded in 1948, fully 14 per cent below the rate of ten years ago and only about one half that registered in 1911. In general, health conditions were favorable throughout the last year.

The improvement in mortality in 1949 over 1948 resulted in an increase of about .6 of a year in the expectation of life at birth among the industrial policyholders. In the last four decades the expectation of life has risen steadily, from 46.6 years in 1911-1912 to 67.8 years in 1949, a gain of more than twenty-one years.

Every age period has benefited from the decline in mortality, but the decreases have been largest in childhood and early adult life. In the last four decades, the reduction in the age groups under 35 years amounted to more than 70 per cent for white males and to more than 80 per cent for white females. But even at ages between 65 and 74 the improvement came to 37 per cent and 47 per cent for white males and females, respectively. Nor are the striking changes in the age picture limited to long-range comparisons. Even as compared with 1948, the death rate in 1949 recorded a decline at almost every age period in each sex.

In 1949, for the first time, the death rate from influenza and pneumonia combined was less than 20 per 100,000. Only six years ago the rate was twice as high, and in 1937, before chemotherapy and the antibiotics were used, it was more than four times as high.

The tuberculosis death rate among the industrial policyholders decreased from 224.6 per 100,000 in 1911 to 24.1 in 1949, a reduction of nearly 90 per cent. In the postwar period the drop in mortality has proceeded at an accelerated rate, averaging about 10 per cent a year.

For the four diseases combined—measles, scarlet fever, whooping cough and diphtheria—the death rate at ages 1 to 14 years declined from 171.8 per 100,000 policyholders in 1911 to 2.6 in 1949, a drop of 98 per cent. Forty years ago, the mortality from diphtheria alone among these insured children was more than thirty times the present rate for all four diseases combined.

The puerperal death rate dropped two thirds in the last decade, although the birth rate had increased by more than one third. In the general population of the United States, the maternal mortality dropped from 4 per 1,000 live births in 1939 to about 1 per 1,000 in 1949.

The list of diseases recording minimum death rates in 1949 includes, in addition to those already mentioned, syphilis, appendicitis, diarrhea and enteritis and typhoid fever. The death rate from syphilis last year was only one half that recorded in 1911; for appendicitis the reduction was four fifths. Even greater has been the decrease in the mortality from diarrhea and enteritis and from typhoid fever, both of which were important causes of death forty years ago.

Organization and Economics

NEWS

Herbert H. Virden, M.D., Kansas City, spoke before members of the Business and Professional Women's Club of Lee's Summit on February 21 on "Cancer."

F. G. Thompson, M.D., St. Joseph, is being honored by a lectureship established in honor of his sixty years of practice by the Thompson, Brumm and Knepper Clinic, St. Joseph. John M. Waugh, M.D., Rochester, Minn., will give the first lecture on May 4 on "Indications for Surgical Treatment of Peptic Ulcer."

David Littauer, M.D., Kansas City, recently was elected chairman of the executive committee of the Health Council of the Council of Social Agencies. William A. Stagg, M.D., and Hugh L. Dwyer, M.D., Kansas City, were reelected members of the executive committee.

Wilber P. McDonald, M.D., St. Joseph, spoke before the League of Women Voters in St. Joseph, reviewing the public health accomplishments in St. Joseph and suggested possible future developments.

George L. Watkins, Jr., M.D., Farmington, spoke before the Farmington Kiwanis Club on "Socialized Medicine" on February 8.

Grandison D. Royston, M.D., St. Louis, was honored by a testimonial dinner given at the Missouri Athletic Club, St. Louis, on March 1. Dr. Royston retired from practice on March 1 after forty-three years of practice.

The Missouri State Chamber of Commerce will hold its annual convention at Jefferson City on April 19. At a banquet at 6:30 p. m. at the Missouri Hotel, Ralph J. Gempell, M.D., a successful English physician who voluntarily exiled himself from the British socialized medical system, will be the guest speaker.

MUSINGS OF THE FIELD SECRETARY

Do you know of a physician who might be in a locum tenens from April 1 to September 1 in an attractive set-up?

Do you know of any physicians looking for good general practice locations?

The Headquarters Office can assist in helping those doctors concerned with these questions.

Some 3,000 physicians registered at the recent meeting of the American Academy of General Practice in St. Louis. The total registration ran more than 5,000. There seemed to be much interest and satisfaction in this meeting.

The annual meeting of the Missouri Academy of General Practice will be held at the Kentwood Arms Hotel, Springfield, on April 27. The morning session will be mostly for Academy business, the luncheon and afternoon sessions scientific and the evening session will be of a medical economic nature with R. B. Robbins, M.D., Camden, Arkansas, national Democratic Chairman of the State of Arkansas and Speaker of the House of Delegates of the American Academy of General Practice, giving the principal address. All members of the Missouri State Medical Association are invited to this meeting.

Since the beginning of 1950 evening dinner meetings of Councilor Districts 2, 5, 6, 9 and 10 have been held. District 8 held two such meetings during the latter part of 1949. Districts 1 and 4 have been holding similar meetings except that in these districts it has seemed more practical to have two or three meetings in different sections of the district primarily for the physicians in those particular sections. Districts 3 and 7 have so many meetings of various kinds that there is not time or room for a specific district meeting. Many societies are meeting regularly and presenting well selected programs. There seems to be plenty of medical functions going on these days.

DEATHS

Smith, Oda O., M.D., St. Louis, a graduate of Washington University School of Medicine, 1911; member of the St. Louis Medical Society; aged 67; died January 1.

Robinson, David Beach, M.D., Kansas City, a graduate of the University of Pennsylvania, 1908; Fellow of the American Medical Association; honor member of the Jackson County Medical Society; aged 67; died January 3.

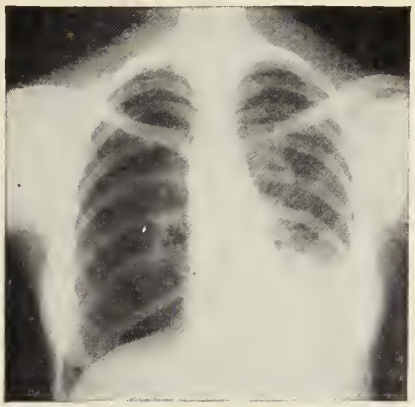
Johnston, Albert S., M.D., Springfield, a graduate of the National University of Arts and Sciences, St. Louis, 1897; honor member of the Greene County Medical Society; aged 78; died January 14.

McCalman, Ira J., M.D., Kansas City, a graduate of Rush Medical College, 1892; honor member of the Jackson County Medical Society; aged 83; died January 23.

Middleton, James, M.D., Kansas City, a graduate of the University Medical College of Kansas City, 1898; Affiliate Fellow of the American Medical Association; honor member of the Jackson County Medical Society; aged 76; died January 23.

Norberg, George B., M.D., Kansas City, a graduate of the University Medical College of Kansas City, 1897; Affiliate Fellow of the American Medical Association; honor member of the Jackson County Medical Society; aged 78; died January 23.

Sanders, Clifford E., M.D., St. Louis, a graduate of Barnes Medical College, St. Louis, 1909; member of the



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St. Louis County Medical Society; aged 67; died January 25.

Martin, Robert E., M.D., Senath, a graduate of Barnes Medical College, St. Louis, 1911; member of the Dunklin County Medical Society; aged 72; died February 8.

Charles, Joseph W., M.D., St. Louis, a graduate of Washington University School of Medicine, 1891; honor member of the St. Louis Medical Society; aged 82; died February 10.

Leavy, Charles A., M.D., St. Louis, a graduate of Marion-Sims College of Medicine, St. Louis, 1903; Fellow of the American Medical Association; member of the St. Louis Medical Society; aged 77; died February 11.

Hirschi, William Tell, M.D., St. Louis, a graduate of Marion-Sims College of Medicine, 1899; Fellow of the American Medical Association; honor member of the St. Louis Medical Society; aged 78; died February 13.

Townsend, William H., M.D., Maplewood, a graduate of Barnes Medical College, St. Louis, 1891; honor member of the St. Louis County Medical Society; aged 84; died February 24.

Greene, Joseph W., M.D., Independence, a graduate of the University Medical College of Kansas City, 1904; member of the Jackson County Medical Society; aged 73; died March 6.

Krebs, Frank J. V., M.D., St. Louis, a graduate of Marion-Sims College of Medicine, St. Louis; Fellow of the American Medical Association; honor member of the St. Louis Medical Society; aged 75; died March 6.

MISSOURI ACADEMY OF GENERAL PRACTICE

The Missouri Academy of General Practice will hold its second annual meeting in Springfield on April 27 at the Kentwood Arms Hotel. All members of the Missouri State Medical Association are invited.

R. B. Robbins, M.D., Camden, Arkansas, will be the principal speaker at a dinner at 6:00 p. m., at which time new officers will be installed. Dr. Robbins is national Democratic Chairman of the State of Arkansas, Speaker of the House of Delegates of the American Academy of General Practice and chairman of several committees of the national organization.

The morning session will be devoted to a business session. At a 12:00 o'clock luncheon meeting, E. Lee Dorsett, M.D., St. Louis, will speak on "Postpartum Hemorrhage." In the afternoon, beginning at 2:30 p. m., three scientific papers will be presented, directed to general practice: H. R. McCarroll, M.D., St. Louis, will speak on "Orthopedic Problems in General Practice"; J. William Thompson, M.D., St. Louis, will discuss "Pitfalls in Abdominal Surgery," and G. Wilse Robinson, Jr., M.D., Kansas City, will talk on "Psychosomatic Disorders."

Officers, the board of directors and chairmen and vice chairmen of committees will meet at 8:00 p. m. on April 26 to map the future policy of the Missouri Academy.

THE MISSOURI SOCIETY OF ANESTHESIOLOGISTS

On March 30, 1842, in Jefferson County, Georgia, Dr. Crawford Long excised a tumor of the shoulder, using ether as a general anesthetic agent for the first time in the history of medicine and surgery. Four years later at the Massachusetts General Hospital, Wells and Morton demonstrated the use of Letheon and nitrous oxide for oral surgery. On September 11, 1847, the following article appeared in the *Missouri Republican:*

"On Saturday last we witnessed the amputation of an arm, by Dr. Pope, at the St. Louis City Hospital, the subject being under the influence of Letheon gas, a gas which, it is asserted, renders the patient insensible to pain. The subject was a German, speaking only that language, and was considerably excited when brought into the operating room.

"At first, some difficulty was experienced in getting the patient to inhale the gas properly. After this difficulty had been overcome, upon the insertion of the knife, there were some manifestations of suffering—the patient throwing his arms and leg about, but afterward on conversing with him, he asserted that he did not feel any pain during the operation—that part of the time he thought he was in Germany dancing but at no time had he experienced any pain whatever. He seemed to be a rational man and his positive assertions that he felt no pain were sufficient to outweigh the appearances at the commencement of the operation. If this is such an agent as it is represented to be—if insensibility to pain can be caused by it, and yet no harmful results are produced—and that it has these qualities, it is a most important agent of the medical profession."

From these most humble beginnings the development of anesthetic agents has progressed through chloroform, ethylene, cyclopropane, vinethene, evipal, avertin, cocaine derivatives and sodium pentothal to modern concepts of combinations of two or more of them. Along with these refinements has come a demand for a better understanding of the basic sciences and their role in the anesthesiologic processes. It is this latter fact that has led the American Society of Anesthesiologists, through its component societies, the various state societies, to encourage postgraduate training in anesthesiology. The organization of the American Board of Anesthesiology and the American College of Anesthesiology have been broad steps in this direction. A natural outgrowth of these organizations has been the establishment of formal residencies in many leading hospitals and of formal departments in many medical schools throughout the country. These things, however, are attractive only to the individual whose major interest lies in anesthesia. It is, therefore, the perogative of the Missouri Society of Anesthesiologists to encourage that greater majority—the part-time anesthesiologists—to increase their understanding of proceedures and technics in an effort to render a greater service to the people of Missouri.

The Missouri Society of Anesthesiologists is an organization composed of full and part-time anesthesiologists, all of whom are duly licensed practitioners of medicine and members of the American Society of Anesthesiologists. It was formed by a



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small group who met in Kansas City in April 1947. The first two years of its existence were devoted to the development of its membership, formulation of its future plans and the conduction of a survey of the status of anesthesia in the State of Missouri. This year it has committed itself to a three point program which has, as its ultimate design, the stimulation of an interest in anesthesiology among the doctors of the state.

The first point of the program consisted of the establishment of a speakers' bureau. Through this agency it is possible for the various county medical societies to secure speakers for their regular society meetings. Qualified anesthesiologists will address these meetings on any phase of modern anesthesia.

The second point in the program consisted of the establishment of postgraduate training centers in Kansas City and St. Louis. By this means it is possible for any doctor to avail himself of the opportunity to receive instruction in any phase of anesthesia without cost or obligation. He may attend one of the centers at his own convenience, the only limit being the length of time he chooses to spend.

The third point consisted of the appointment of a committee on postgraduate education. It is the function of this committee to prepare suitable articles on anesthesiologic subjects and circulate them among the doctors in the state who are active in the field of anesthesiology.

That this program is a successful one is evidenced by the fact that physicians have attended the training centers, that several medical societies have asked for speakers and that many physicians have expressed their appreciation of the monthly articles they have received.

Since the society is able to appreciate the problems in the status of anesthesia only from its own viewpoint, and since the program is an elastic one designed to fit the needs of all, it is earnestly desired that all individuals interested, offer their constructive criticisms or suggestions.

Any physician or group of physicians may obtain further information by contacting J. J. Merz, M.D., 6005 Bishop's Place, St. Louis.

WOMAN'S AUXILIARY

Mr. Hartley Pollock, St. Louis attorney, spoke before a public relations luncheon meeting of the Woman's Auxiliary to the Jefferson County Medical Society at DeSoto on March 9. Seventy-five representatives of various women's clubs in the county were guests at the luncheon.

Mr. Pollock spoke on "Socialized Medicine, a Cross Roads." The great amount of interest shown by those present was quite indicative of the accepted importance of this subject as well as a tribute to Mr. Pollock's excellent presentation.

Mrs. John O'Connell, St. Louis, immediate Past President; Mrs. Richard Sutter, St. Louis, chairman of Public Relations, and Mrs. Dwight VanDel, Kansas City, President-Elect of the Woman's Auxiliary, were special guests.

SOCIETY PROCEEDINGS

FIRST COUNCILOR DISTRICT

DONALD M. DOWELL, CHILLICOTHE, COUNCILOR

Linn County Medical Society

Twenty-five physicians from ten counties attended a dinner meeting at the Strand Hotel, Chillicothe, February 9. The meeting was sponsored by the Linn County Medical Society.

Henry C. Willumsen, M.D., St. Joseph, spoke on "Complications Arising in the Third Stage of Labor." An interesting discussion followed the presentation of this practical subject.

JOHN DIXON, M.D., Secretary,
Linn County Medical Society.

SECOND COUNCILOR DISTRICT

W. F. FRANCKA, HANNIBAL, COUNCILOR

Physicians of the Second Councilor District and guests, totaling thirty-five, attended an evening dinner meeting at the Mark Twain Hotel, Hannibal, on February 16.

The meeting began with a social hour with the Marion-Ralls County Medical Society as host and was followed by a steak dinner.

L. V. Mulligan, M.D., St. Louis, presented a most interesting discussion on "Venus Shunts in Portal Hypertension."

Mr. T. R. O'Brien, St. Louis, Executive Secretary, gave a short résumé of pending legislation and followed this with comments concerning the Centennial Meeting of the Association.

W. F. FRANCKA, M.D., Councilor.

Chariton-Macon-Monroe-Randolph County Medical Society

Stanley S. Nemec, M.D., St. Louis, spoke before the Chariton-Macon-Monroe-Randolph County Medical Society at the Woodland Hospital, Moberly, on February 9. His subject was "X-Ray Consideration of Chest Conditions."

Twenty-eight physicians attended this meeting, including seven guests from Centralia, Columbia, Kirksville and Fayette.

HENRY K. BAKER, M.D., Secretary.

FOURTH COUNCILOR DISTRICT

OTTO W. KOCH, CLAYTON, COUNCILOR

Lincoln County Medical Society

Thirty physicians from Lincoln, Pike, St. Charles, St. Louis and Warren counties attended a medical dinner meeting on March 9 at the Southern Air, Wentzville.

An interesting and informative discussion on "The Management of the Dizzy Patient" was presented by G. O'Neil Proud, M.D., St. Louis.

J. C. CREECH, M.D., Secretary,
Lincoln County Medical Society.

FIFTH COUNCILOR DISTRICT

J. FRANK JOLLEY, MEXICO, COUNCILOR

The Mexico Country Club furnished the site for an evening dinner meeting of the Fifth Councilor Dis-



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trict the evening of March 2. Seventy physicians and guests enjoyed a social hour prior to the dinner and program.

Following a number of guest introductions, Wallis Smith, M.D., Springfield, President of the Association, discussed "Some Things to Think About."

The scientific part of the program was presented by Daniel L. Sexton, M.D., St. Louis, who spoke on "Sex Hormone Therapy."

J. FRANK JOLLEY, M.D., Councilor.

NINTH COUNCILOR DISTRICT

E. C. BOHRER, WEST PLAINS, COUNCILOR

The Ninth Councilor District met at the Nelson Hotel, Lebanon, on January 10 with one hundred eighteen present.

Following dinner, Mayor George Bassore of Lebanon and Howard Carrington, M.D., president of the Laclede County Medical Society, welcomed the group.

E. C. Bohrer, M.D., West Plains, Councilor, presided during the meeting following the dinner.

Joseph W. Kelso, M.D., Oklahoma City, Oklahoma, of the University of Oklahoma School of Medicine, was the guest speaker and reported on sixty-two Wertheim operations, illustrating his talk with colored films. This was discussed by E. D. Sugarbaker, M.D., and W. L. Wiley, M.D., Jefferson City; Ralph E. Duncan, M.D., and George Miles, M.D., Kansas City, and Ernest Wagoner, M.D., Columbia.

Wallis Smith, M.D., Springfield, President of the Association, was introduced at the dinner.

Preceding the dinner, Dr. and Mrs. Paul Jenkins held open house in honor of Dr. and Mrs. Kelso.

South Central Counties Medical Society

The South Central Counties Medical Society met at the Elliott Hotel, Mountain Grove, January 25, with the following members and visitors present: Drs. S. T. VanNoy, Norwood; R. A. Ryan, R. W. Denney, S. W. Connor and A. C. Ames, Mountain Grove; Garrett Hogg, Jr., Cabool; S. G. Kramer, R. E. Musser, Willow Springs; E. C. Bohrer, West Plains; U. J. Busiek and M. L. Napper, Springfield.

S. G. Kramer, M.D., Houston, was accepted as a member by transfer from the St. Louis Medical Society.

R. A. Ryan, M.D., was named as delegate from Wright County, and R. W. Denney, M.D., as alternate.

Drs. Busiek and Napper presented histories and x-ray plates of a number of pediatric cases showing remarkable recoveries of serious tuberculosis conditions under modern methods of treatment.

A vote of thanks was given the speakers and the meeting adjourned to meet in West Plains on February 15, the West Plains members to arrange for the meeting and program.

A. C. AMES, M.D., Secretary.

South Central Counties Medical Society

The South Central Counties Medical Society met for dinner at the Doty Hotel, West Plains, on February 15, with the following members and visitors present: Drs. R. W. Denney, H. G. Frame, G. W. Connor and A. C. Ames, Mountain Grove; Garrett Hogg, Jr., Cabool; F. J. Burns, Houston; R. E. Musser, Willow Springs; Rollin H. Smith, E. C. Bohrer and C. T. Callihan, West Plains; C. W. Cooper, Thayer, and Mr. Robert L. Hyde, attorney, West Plains.

Following dinner, the meeting was called to order by the president, Dr. Smith, in his office and the minutes of the last meeting were read and approved.

It was decided not to ask for the film on "Breast Cancer" offered by the American Cancer Society.

It was voted to extend the resolution covering the expense of flowers to apply to other expenses outside the regular expenses of the Society.

The meeting was then turned over to Mr. Hyde who spoke on "Some Legal Problems of Interest to Physicians," after which he answered numerous questions not covered in his address. All agreed that it was an interesting and profitable discussion.

It was voted to omit the March meeting and meet in Houston on April 19.

A. C. AMES, M.D., Secretary.

TENTH COUNCILOR DISTRICT

FRANK W. HALL, CAPE GIRARDEAU, COUNCILOR

Physicians from the Tenth Councilor District met at State Hospital No. 4, Farmington, on January 26 for a dinner meeting.

Wallis Smith, M.D., Springfield, President of the Association, spoke on "Things to Think About."

E. Lee Dorsett, M.D., St. Louis, discussed "Management of the Third Stage of Labor."

Members in attendance from the host society were Drs. C. H. Appleberry, Byron Taylor and P. L. Jones, Flat River; Dailey Appleberry, Rivermines; H. C. Gaebe, Desloge; Van W. Taylor, H. M. Roebber and M. T. Haw, Bonne Terre; E. F. Hoctor. G. L. Watkins, Sr., G. L. Watkins, Jr., F. R. Crouch and James Stout, Farmington; J. L. Thurman, Potosi.

Ste. Genevieve County Medical Society was hyphenated with the St. Francois-Iron-Madison-Washington-Reynolds County Medical Society and the name was changed to the Mineral Area County Medical Society.

MARVIN T. HAW, JR., M.D., Secretary.

Mineral Area County Medical Society

The regular meeting of the Mineral Area County Medical Society was held at 8:00 p. m., February 23, at State Hospital No. 4, Farmington.

John Modlin, M.D., Columbia, chief surgeon of the State Cancer Hospital, spoke on "Five Year Results of Cancer Treatment at the Ellis Fischel State Cancer Hospital."

The following officers were elected: President, Ben M. Bull, M.D., Ironton; vice president, Van W. Taylor, M.D., Bonne Terre; secretary-treasurer, Paul L. Jones, M.D., Flat River.

The following members were present: Drs. G. L. Watkins, Sr., G. L. Watkins, Jr., E. F. Hoctor, S. A. Lanzafame, Farmington; P. L. Jones, C. H. Appleberry, Byron Taylor, Flat River; Ben M. Bull, Ironton; Dailey Appleberry, Rivermines; S. C. Slaughter, Frederick town; A. L. Evans, Van W. Taylor, M. T. Haw, Jr., Bonne Terre.

MARVIN T. HAW, JR., M.D., Secretary.

COUNTY SOCIETY HONOR ROLL — 1950

(Societies which have paid dues for all members and date placed on Honor Roll)

Benton County Medical Society—December 3, 1949

Camden County Medical Society—December 5, 1949

Harrison County Medical Society—December 7, 1949

Moniteau County Medical Society—December 9, 1949

Ste. Genevieve County Medical Society—December 15, 1949

Miller County Medical Society—December 16, 1949

Callaway County Medical Society—December 17, 1949

Webster County Medical Society—December 19, 1949

Perry County Medical Society—December 21, 1949

Dallas, Hickory, Polk Counties Medical Society —December 29, 1949

Audrain County Medical Society—December 30, 1949

Lewis, Clark, Scotland Counties Medical Society January 4, 1950

Howard County Medical Society—January 10, 1950

Pike County Medical Society—January 10, 1950

Linn County Medical Society—January 15, 1950

Shelby County Medical Society—January 18, 1950

Pettis County Medical Society—January 18, 1950

Henry County Medical Society—January 26, 1950

Carter-Shannon County Medical Society—January 27, 1950

Carroll County Medical Society—February 4, 1950

Morgan County Medical Society—February 8, 1950

Mineral Area County Medical Society—February 8, 1950

Laclede County Medical Society—February 9, 1950

Bates County Medical Society—February 13, 1950

Cape Girardeau County Medical Society—February 25, 1950

Vernon-Cedar County Medical Society—February 27, 1950

Johnson County Medical Society—March 3, 1950

Franklin County Medical Society—March 13, 1950

BOOK REVIEWS

Physiology of Thought, The by Harold Bailey, M.D., F.A.C.S. The William-Frederick Press. New York. 1949. Price $3.75.

The author of this book is apparently a nose and throat specialist and he admits that he has consulted few sources outside his own train of thought. The book is about what would be expected under such circumstances. It is mainly a soliloquy on a series of vague and abstruse subjects as consciousness and thought, physiology of consciousness and consciousness and life. Little specialized knowledge is displayed and that assumed is mostly erroneous. The book has little point to it. L. B. A.

Atlas of Amputations, An by Donald B. Slocum, M.D., M.S., Orthopaedic Surgeon, Sacred Heart General Hospital, Eugene, Oregon; Member of American Academy of Orthopaedic Surgeons; Member of the American Society for Surgery of the Hand; Branch Consultant in Orthopaedic Surgery, U. S. Veterans Administration; formerly Chief of the Amputation Section, Walter Reed General Hospital, Washington, D. C. With 564 Illustrations. C. V. Mosby Company, St. Louis. 1949. Price $20.00.

Although there are many illustrations of high quality present, the title of this book does not reveal its exact nature. The book is of much greater value than would be a formal atlas. It is well organized into various chapters, and covers in detail the complete treatment of all types of amputations. This includes preoperative care, anesthetic choice, operative technic, postoperative care and, finally, a brilliant, well illustrated section on the functional rehabilitation of the amputee.

The material on which the book is based was collected, for the most part, from the hundreds of amputees which resulted from World War II. Thus this book represents the ultimate authority to guide present day therapy of the amputee or amputation candidate. All general surgeons, and orthopedic surgeons in particular, should familiarize themselves with this volume. R. L.

Clinical Orthoptics, Diagnosis and Treatment, by Mary Everist Kramer, Supervisor, The Orthoptic Department, The George Washington University Hospital, Washington, D. C. Edited by Ernest A. W. Sheppard, M.D., Professor of Ophthalmology, The George Washington University School of Medicine, Washington, D. C., and Louisa Wells-Kramer, Certified Orthoptic Technician, Washington, D. C. 147 Illustrations. C. V. Mosby Company. St. Louis. 1949. Price $8.00.

As the title might imply, this book is intended primarily for orthoptic technicians or students in the field. In this respect it fills a need long felt. Especially valuable for teaching is a set of questions at the end of each chapter.

The average ophthalmologist who finds it more feasible to refer his orthoptic cases to a clinic is likely to lose touch with the methods and instruments used in which case one will find this book of value.

Wade Hampton Miller, M.D., a member of Jackson County Medical Society is to be congratulated on his section on neuro-anatomy and original drawings.

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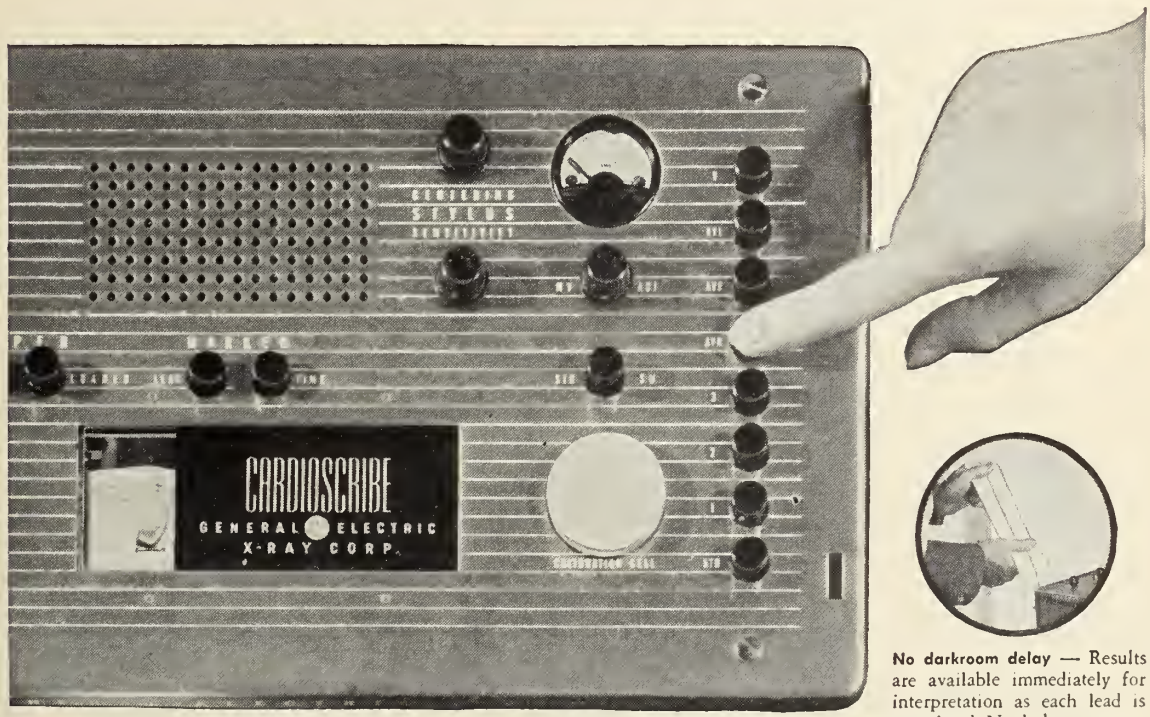
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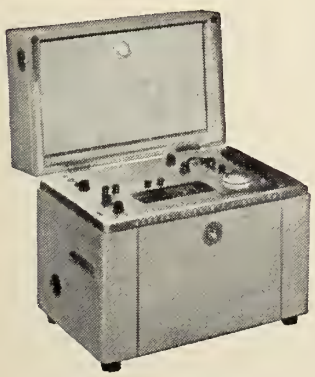


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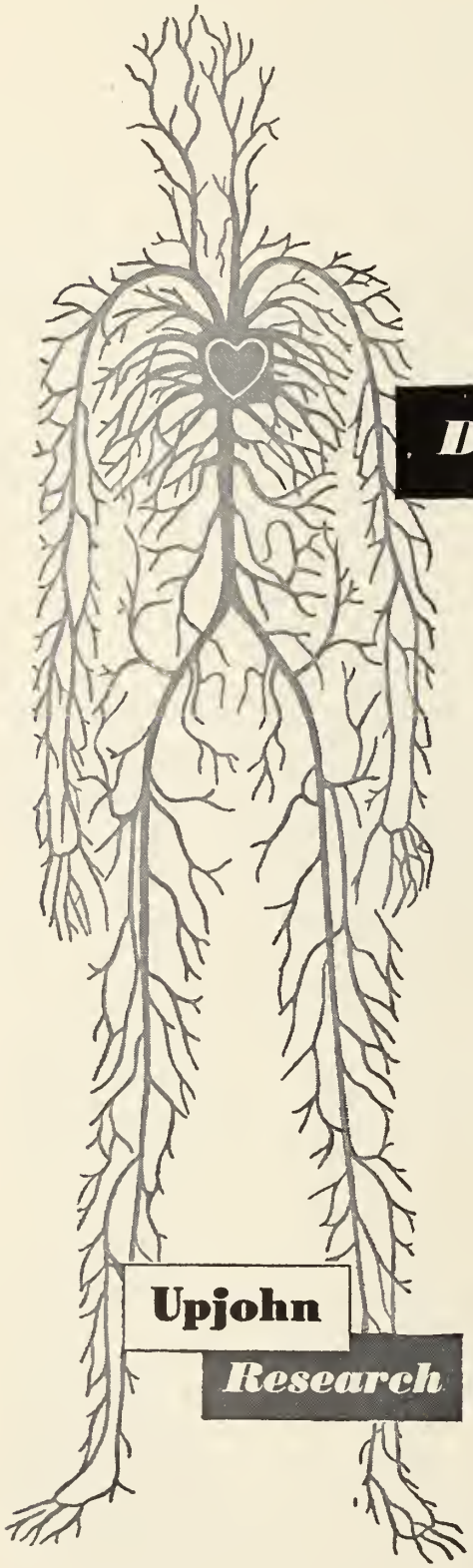
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1. *Withering, W.:* An account of the Foxglove, London, 1785.
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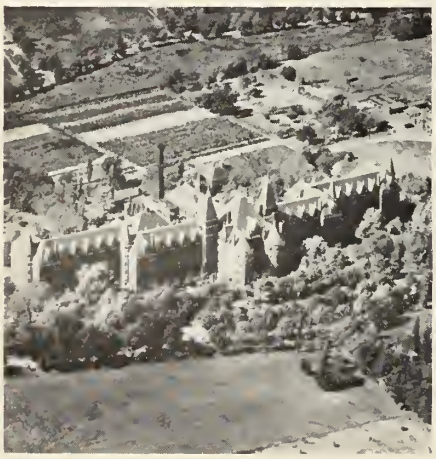
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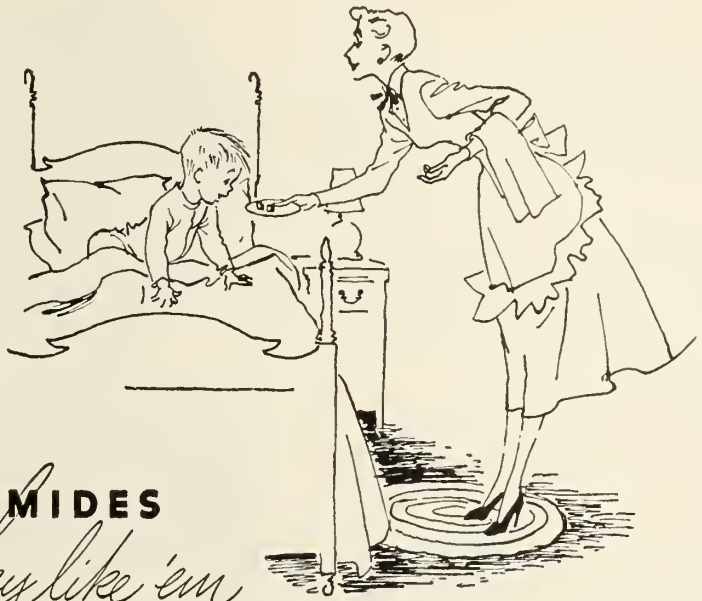
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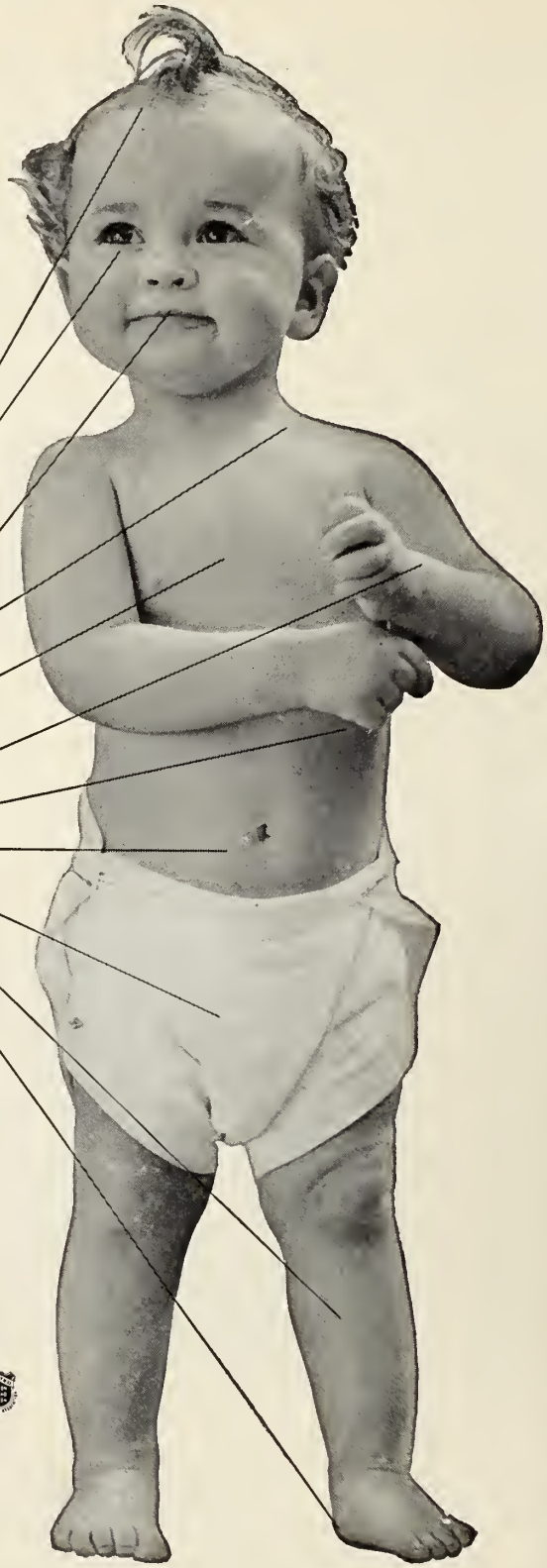
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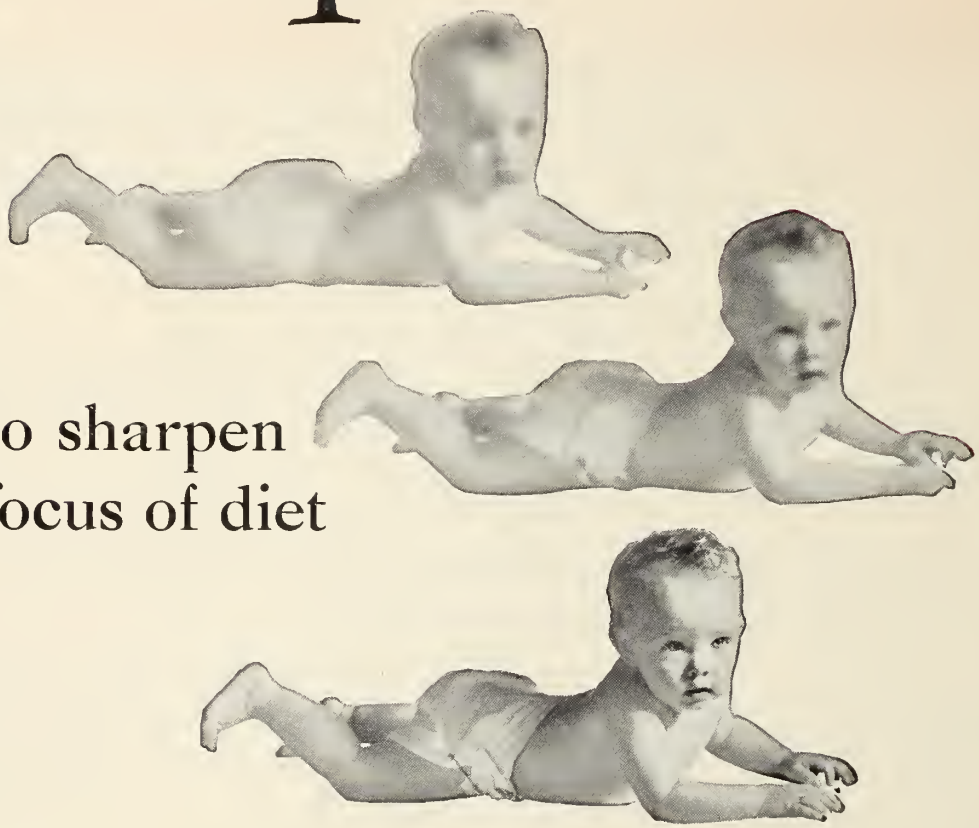


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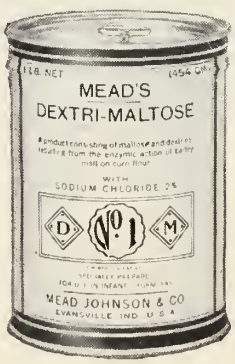


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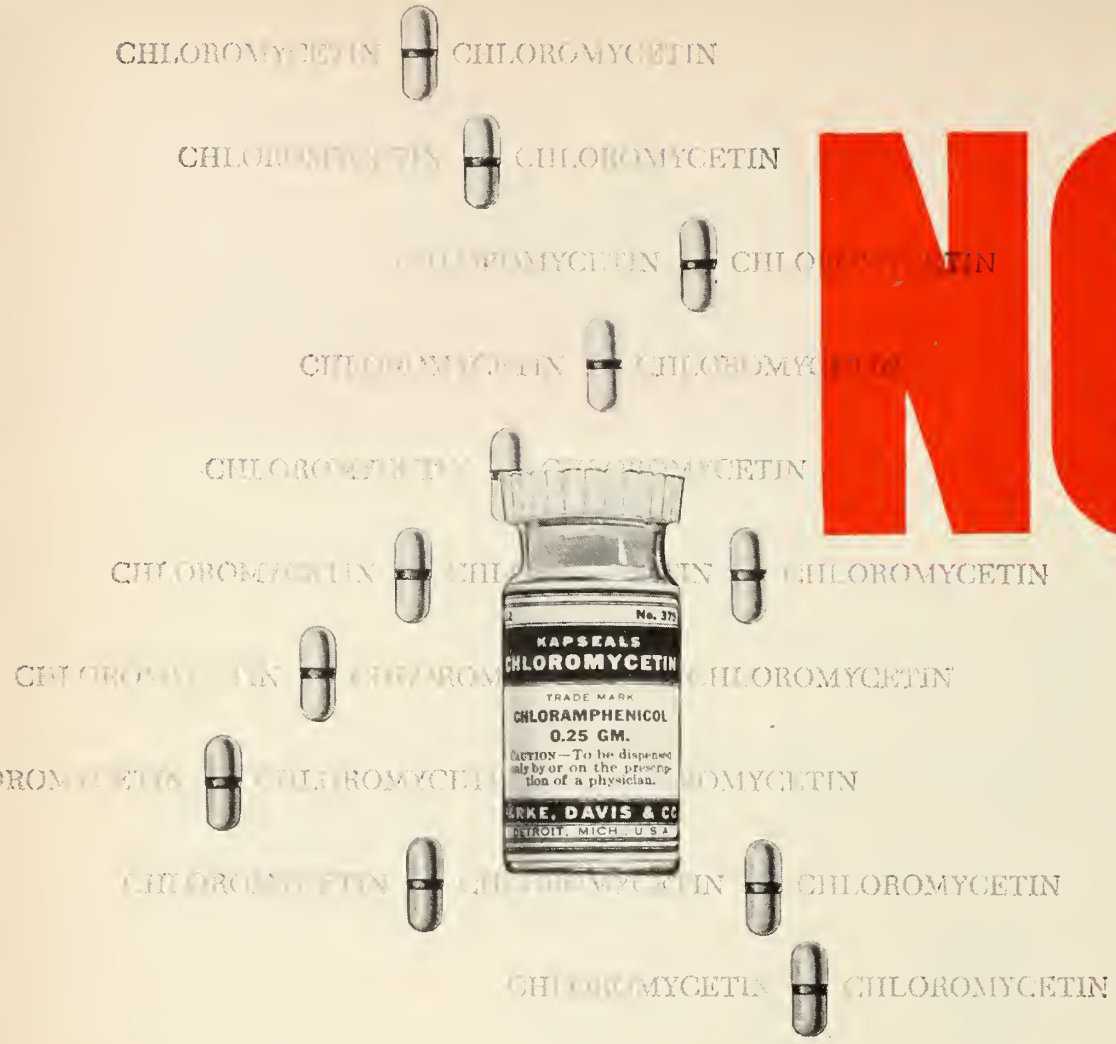
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Payne, E. H.; Knaudt, J. A., and Palacios, S.: J. Trop. Med. & Hyg. *51*:68, 1948

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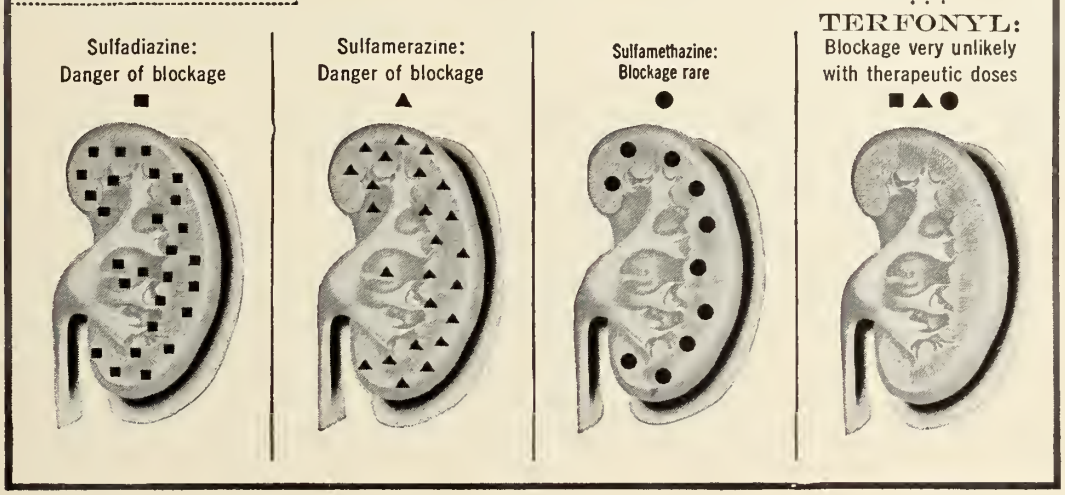
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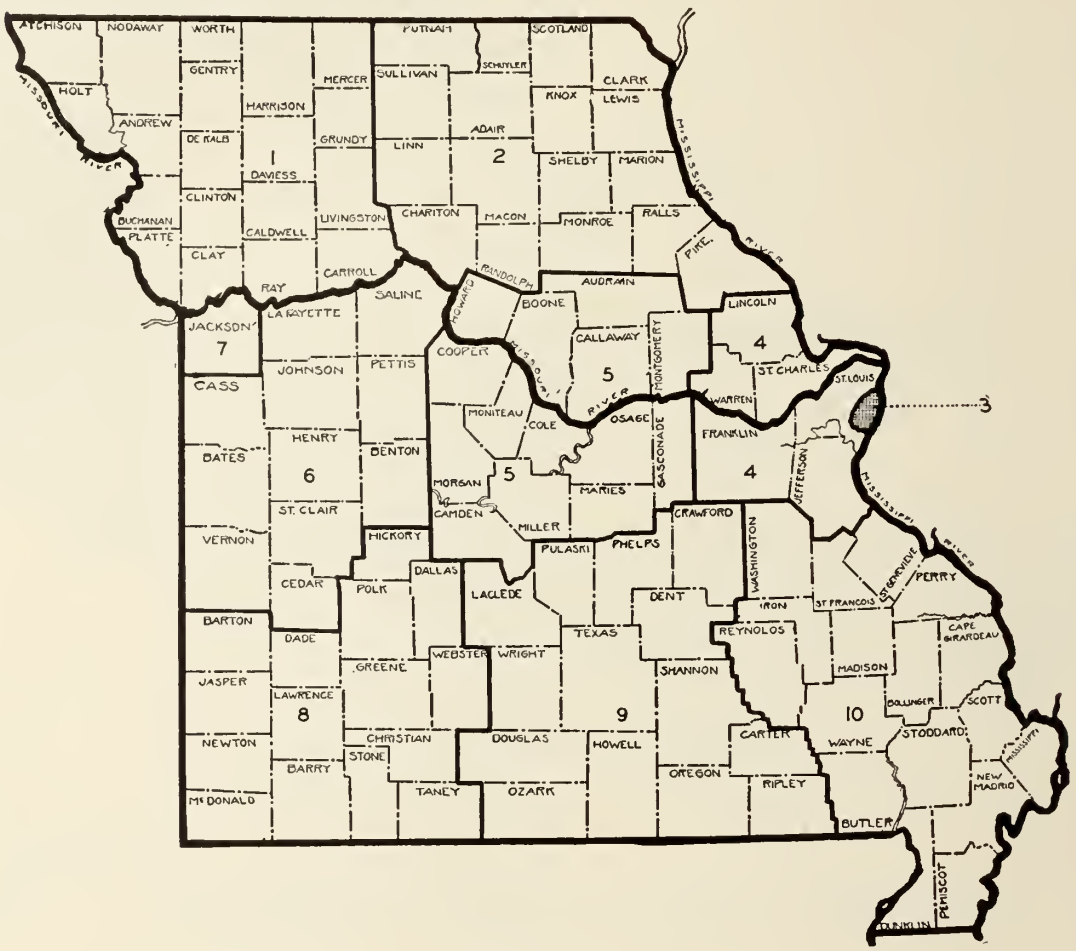
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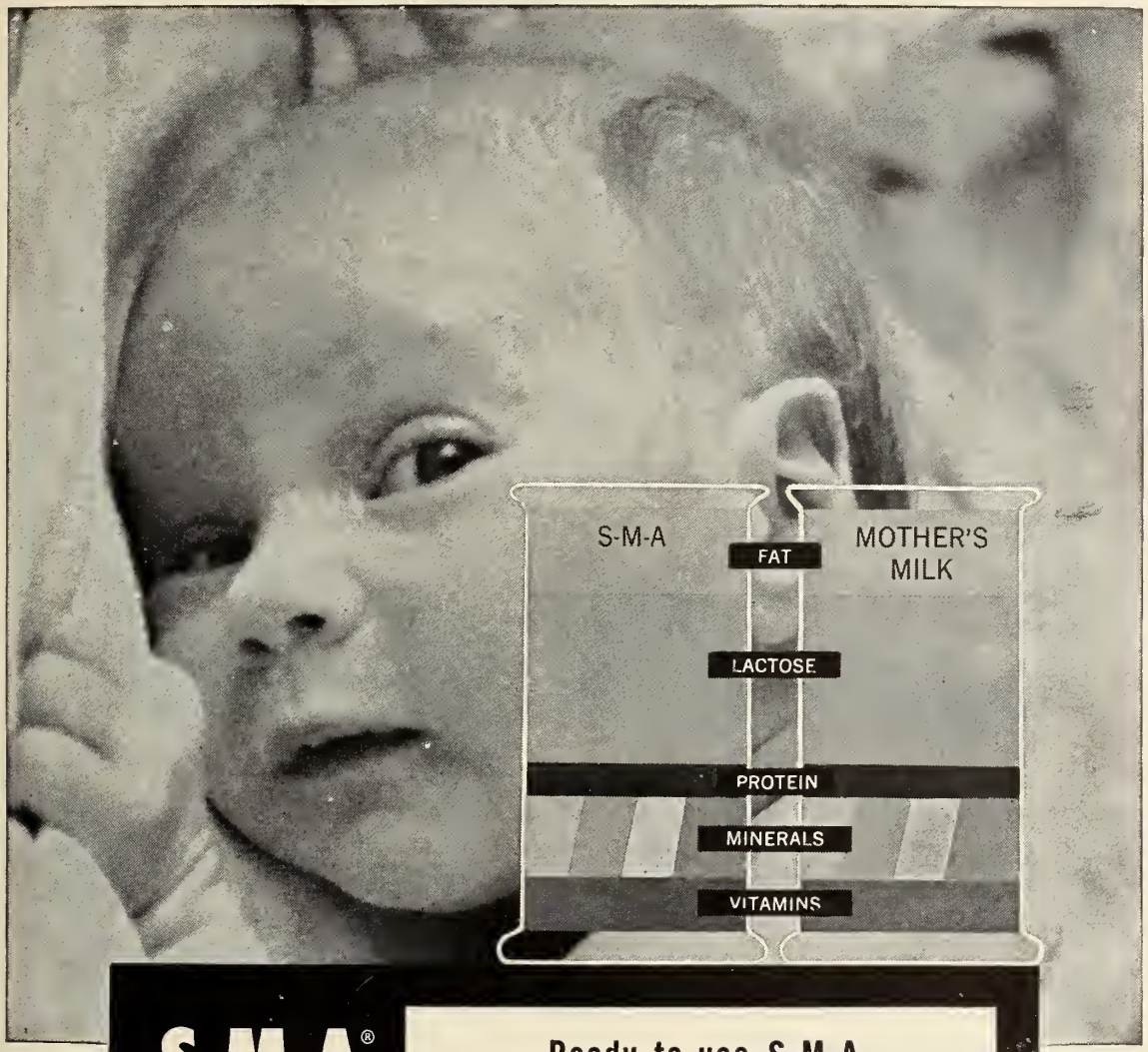
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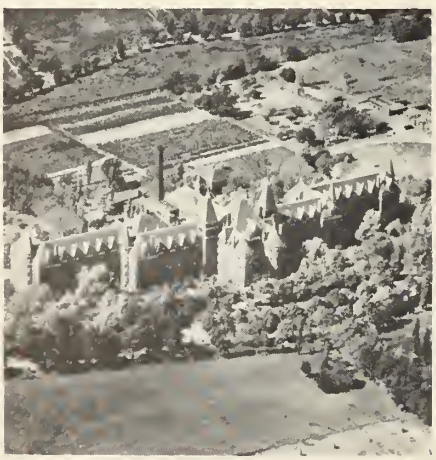
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THE JOURNAL

OF THE

Missouri State Medical Association

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Volume 47 MAY, 1950 No. 5

Scientific Articles

COARCTATION OF THE AORTA OF ADULT TYPE ASSOCIATED WITH ACQUIRED AORTIC STENOSIS

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ST. LOUIS
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COARCTATION of the aorta of the adult type in itself is no longer considered a rare lesion. Based on a series of 68,300 routine autopsies, Blackford[1] estimated the incidence of this condition as one in 1,500 cases. Perlman[2] reported an incidence of one in 10,000 in his series of routine physical examinations for Army service upon an unselected group of men between the ages of 18 and 35.

Many articles have appeared in the literature in the last twenty years reporting large groups of collected cases including autopsy series.[3, 4, 5] There are numerous reports of cases with associated lesions of the heart and vascular tree, but no record could be located of coexisting calcific disease of the aortic valve and coarctation of the aorta.

Minor anomalies, such as bicuspid aortic valves and subaortic stenosis, are often associated with the adult type of coarctation. Hypertrophy and dilatation of the heart, particularly of the left ventricle, is common in the adult type of coarctation with or without bicuspid aortic valves. While hypertension in the arms is the rule in cases of coarctation of the aorta, King[5] has pointed out that it is not always present.

CASE REPORT

C. B., a 52 year old white male was admitted to the St. Louis City Hospital in February 1947, complaining of dyspnea.

A review of the past history revealed that the patient was refused life insurance at 12 years of age because of "high blood pressure." An examination at the age of 30 revealed a blood pressure of 160/95 and a grade III systolic murmur. The blood serology was negative at that time.

There was a history of left frontal sinus surgery in 1939 and subsequent prominence of the left eye.

There was no past history of rheumatic fever or syphilis.

There were two previous admissions to the St. Louis City Hospital. In July 1934 the patient was hospitalized briefly because of heat exhaustion. His blood pressure was 146/90 and physical examination was negative except for high fever and dehydration.

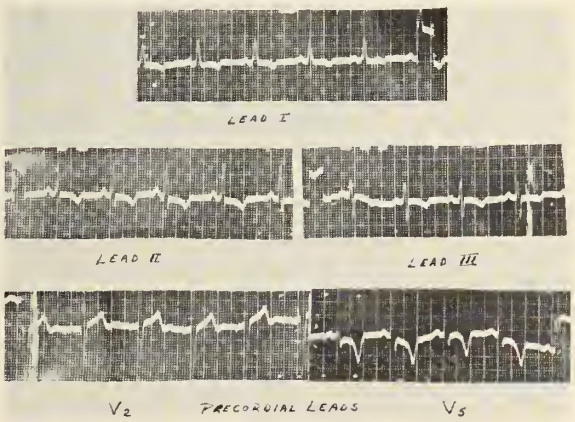


Fig. 1.

In December 1935, the patient sustained a compound fracture of both bones of the right leg in an automobile accident. At that time his blood pressure was recorded as 156/96 and a grade III aortic systolic murmur was noted. A proptosis of both eyes, especially on the right, was noted. Cardiovascular evaluation was not carried out on that admission.

The patient subsequently was employed as a factory worker and a bartender, and was quite asymptomatic. At that time he noted the onset of paroxysmal nocturnal dyspnea and increasing exertional dyspnea.

The physical examination revealed proptosis of the left eye and moderate arteriosclerotic changes in the retinal vessels. There were rales and rhonchi over both lung bases. The heart rate was 108, the rhythm regular and the apex was found in the sixth interspace 11.5 cm. to the left of the midline. There was a grade V aortic systolic murmur transmitted into the neck vessels with an associated thrill. The abdomen was normal except for

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the absence of palpable pulsation of the abdominal aorta. There was no peripheral edema and the femoral and further distal pulsations were not palpable in either extremity.

Blood Pressure Recordings.—Right Arm, 120/80; left arm, 125/75; right leg, unobtainable; left leg, unobtainable.

Direct Pressure Readings, Hg Measurements.—Right leg, 72, left leg, 66, systolic.



Fig. 2.

Oscillometric Measurements.—Upper right arm, 12.0; upper left arm, 11.00; thigh of right leg, 1.5; thigh of left leg, 2.5.

Laboratory Findings.—Red blood count, 4.71; white blood count, 6,250; serology, normal; hemoglobin, 15 grams, and differential, normal.

	Total	A.	G.	R.
Serum Protein	5.9	4.28	1.62	2.6
Blood Urea Nitrogen	-12			

Report of Electrocardiogram.—Transverse heart, inversion of T waves in limb leads and myocardial change (fig. 1).

Venous Pressure.—140 mm. citrate (with 40 mm. rise with abdominal pressure).

Circulation Time.—Arm to tongue, 23 seconds; arm to lung, 15 seconds.

X-ray Investigation.—Roentgenoscopy of the heart revealed calcifications within the borders of the heart, corresponding to the location of the aortic valve. These calcific densities were well demonstrated with the patient in the left anterior oblique position and were about midway in the center of the heart in this view. The calcified leaflets showed considerable mobility, moving toward the apex with systole and returning with diastole. There was no evidence of calcification in the mitral valve region.

Stratograms of the heart with the patient again in the left anterior oblique position, revealed the calcifications of the aortic valve. Three distinct areas of calcification were noted corresponding to three valve leaflets. Two of the calcified areas are plainly visible on the stratograms while the third is less dense (fig. 2).

During the course of roentgenologic examination, notching about the inferior margins of the ribs bilaterally was seen and, on subsequent standard six foot roentgenograms, these notchings are noted to extend, bilaterally, from the fourth to tenth ribs posteriorly (fig. 3). The aortic knob was not considered unusual and appeared to have a normal contour in the postero-anterior view. These findings were interpreted as being consistent with coarctation of the aorta.

The patient was fluoroscoped again with particular reference being given to the aorta. The ascending portion showed no changes which could be interpreted as widening or dilatation. The transverse portion was not unusual. However, just distal to this area it was believed a narrowing of the aorta was present which could not be well demonstrated, due to the super-imposition of the vertebral column.

In an attempt to visualize this area, stratographic examination was carried out with the patient placed in a right posterior oblique position. The result (fig. 4) reveals a tapering and definite constriction of the descending aorta in its first portion, just below the descending curve of the aorta. The aorta distal to the point of constriction gradually increases in width and appears normal in the lowermost portion.

Course.—The patient was partially compensated on digitalis, ammonium chloride, salt restriction and mercurial diuretics.

Progress.—The patient has been followed in the heart clinic since discharge. Aside from minimal shortness of breath on exertion, he is symptom free.

DISCUSSION

The case in question presents several interesting features:



Fig. 3.

1. There is a history of an aortic valve lesion at least since the age of 30 without any clear etiologic background. The existence of aortic stenosis at the present time is established by the classical murmur and thrill together with the demonstration by x-ray of distinct calcium deposits in all three valve leaflets (fig. 2).

2. The presence of coarctation of the aorta is demonstrated by planography and physical signs (fig. 4).

3. Although it is usual to have hypertension in the arms, this patient had a relatively normal arterial tension in the arms with a definite hypotension in the legs. King[6] has pointed out that hypertension in the arms, while the rule, is not always present. He postulates that in some cases cardiac failure or other changes may account for a drop in blood pressure from a former hypertensive level. This patient had an elevated brachial blood pressure at the age of 30, according to his private physician. Perhaps the present blood pressure can be attributed to the existence of a marked aortic stenosis and a failing left ventricle.

SUMMARY

A case of coarctation of the aorta, adult type, with coexistent acquired aortic stenosis of undetermined etiology is presented. The pertinent radiographic and physical findings are presented.



Fig. 4.

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FIVE AND ONE HALF YEARS RESULTS OF TUBERCULOSIS TREATMENT AT THE MISSOURI STATE SANATORIUM, MOUNT VERNON, MISSOURI

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CHARLES A. BRASHER, M.D., *Mount Vernon*
POUL OTTOSEN, M.D., *Mount Vernon*

THE MISSOURI State Sanatorium at Mount Vernon, Missouri, has now been in operation for forty-two years, and a report on the work of this hospital for the last five and one half years should be of interest to the physicians of Missouri.

When Robert Koch, more than fifty years ago (1882), brought to the world his discovery that tuberculosis is caused by a germ and demonstrated conclusively that where there are no tubercle bacilli there can be no disease, the cause of tuberculosis control took a great forward leap. With this fact established, the national death rate from the disease has been reduced from several hundred per one hundred thousand population, in the last fifty years, to 29.8 deaths per one hundred thousand in 1948. Nevertheless, it is reported that the number of new cases of tuberculosis reported in 1948 increased and this disease continues to take the lives of more people between the ages of 15 and 34 than any other disease.

The prevention of tuberculosis is brought about by various methods. Some of the important methods are: First, removing the patient who is suffering from this disease from the family and the community; second, by teaching the patient how to dispose of his sputum and other protective mechanisms, for example, the proper use of paper napkins, and third, by control and examination of contacts for a certain period of time. The treatment of tuberculosis consists of bed rest, collapse therapy and more recently, various new surgical procedures and antibiotics have been added as adjuncts.

The first sanatorium in the United States was established by the father of present day treatment, Dr. Edward Livingston Trudeau, at Saranac Lake, New York. From 1885, the date of the establishment of this first sanatorium, to the present time, the sanatorium idea has grown to large proportions. This is because it was found that the isolation and the treatment of tuberculosis could best be accomplished as to groups of individuals, and the value of the sanatorium to the community which it serves is now well established.

The Forty-third General Assembly of Missouri provided for the establishment of an institution somewhere within the state for the treatment of pulmonary tuberculosis in its earlier stages. During the latter part of 1905 a Board of Commissioners decided upon a site of two hundred acres offered by the citizens of Mount Vernon, Lawrence County, Missouri. The first building was completed in 1907. This building provided twenty-four beds. Since that

Table 1. *Five and One Half Years From January 1, 1944, to June 30, 1949.*

	1944	1945	1946	1st. 6 mo. 1947	12 mo. ending June 30 1948	12 mo. ending June 30 1949	Totals
Patient Capacity	625	650	650	650	650	650	
Admissions	556	610	720	339	690	600	3,515
Per cent admitted with far advanced tuberculosis	60.0	67.6	66.6	60.6	65.8	66.8	66.2
Patients discharged:	628	638	709	316	646	626	3,563
Arrested	127	174	206	77	221	234	1,039
Per cent of tuberculosis discharges	23.8	32.2	35.0	30.2	43.0	43.4	36.0
Improved	183	133	124	71	122	132	765
Per cent of tuberculosis discharges	24.0	24.6	21.2	28.0	24.0	24.5	26.0
Unimproved	93	100	100	21	73	80	467
Per cent of tuberculosis discharges	17.4	18.3	17.1	8.6	14.0	15.0	15.0
Non-tuberculous	83	93	121	59	119	73	584
Per cent of total discharges	13.2	14.6	17.2	18.6	19.0	11.6	15.6
Deceased	131	133	153	83	96	93	689
Per cent of total discharges	20.0	20.8	21.7	26.2	14.8	15.0	19.0
Undiagnosed	11	5	3	3	15	14	51
Per cent of total discharges	1.7	0.78	0.4	0.9	2.5	2.2	1.6

Table 2. *Collapse Therapy: Minor Procedures*
5½ Years. Jan. 1, 1944 to June 30, 1949.

	1944	1945	1946	1st. 6 mo. 1947	12 mo. ending June 30 1948	12-mo. ending June 30 1949	Totals
Pneumothoraces	11,944	11,899	10,316	5,298	16,348	9,628	88,569
Pneumoperitoneums	1,544	1,986	3,074	2,109		2,385	
Aspirations	1,544		1,698	630		716	
Bronchoscopies	274	365	346	117	417	322	1,841
Phrenic (Permanent)			1				1
Phrenic (Temporary)	3	167	200	116	156	108	750
Oleothoraces			9	4		18	31
Pneumonolyses (Closed)	119	163	116	80	165	107	750
Totals	15,428	14,580	15,760	8,354	17,086	13,734	84,942

time the institution has grown until it now has a capacity of 650 beds for tuberculosis patients.

The purpose of this paper is to review the results of the treatment of pulmonary tuberculosis at the Missouri State Sanatorium for the five and one half years, from January 1, 1944, to June 30, 1949.

As can be seen from table 1, the patient capacity during this period was 650 beds, and 3,515 patients were admitted. The percentage of patients admitted showing far advanced tuberculosis was high, the lowest being in 1944, when it was 60.0 per cent, and the highest in 1945 when it was 67.6 per cent, the average for the period being 66.2 per cent.

During this period there were 3,563 patients discharged from the hospital. Of this number, 1,039 patients were discharged as arrested cases, 765 patients were discharged as improved, 467 patients were discharged as unimproved, 584 patients were discharged as non tuberculous, and 689 patients died. Fifty-one patients were undiagnosed.

The percentage for each type of case is given in table 1. It is easily seen that these figures are not ideal when 689 patients out of the 3,563 discharged were deceased persons. However, over this period 66.2 per cent of the patients admitted had far advanced tuberculosis at the time they entered the hospital, and attention is called to table 4 which shows that a high percentage of these patients were past help when they entered; of the 689 patients who died, 55 per cent expired during the first six months in the sanatorium and 70 per cent of these deaths occurred in patients who had been in the sanatorium less than one year. Also, it will be noted that 32 per cent of the number died during their first two months in the hospital.

Thus, it is seen that the problem of early diagnosis and early treatment continues to be the paramount problem in tuberculosis treatment and control, and that it is not only a problem for the public health department, but a challenge to the diagnostic acumen of the physicians of Missouri since 70 per cent of the deaths at the sanatorium occurred in patients who were practically beyond treatment when they came to the Sanatorium.

Table 3. *Major Thoracic Surgery: Five and One Half Years, Jan. 1, 1949 to June 30, 1949.*

	1944	1945	1946	1st 6 mo. 1947	12 mo. end. 6-30-48	12 mo. end. 6-30-49	Totals
Thoracoplasties	147	172	200	73	138	104	834
Pneumonectomies	1	2	13	13	18	20	67
Plumbage with acrylate Pack				7	8	36	51
Lobectomies	2	13	11	4	20	20	70
Thoracotomies	6	8	15	8	9	2	48
Revisions		2			1	6	9
Open Pneumonolyses			1		1	6	8
Decortications			2	1	3	9	15
Rib Resections	1		3	2	4	3	13
Closure Broncho-pleural Fistula					1	3	4
Schede	4	2	2	1			9
Excision of tuberculoma						1	1
Lingualectomy				1	3	1	5
Excision of sinus						1	1
Apicolysis		1	3				4
Modified Monaldi					1	1	2
Pericardial Cystectomy					1		1
Removal of intra-thoracic Tumor					1		1
Thoracoplasty and removal of acrylate marble pack						1	1
Pneumonectomy and removal of acrylate marble pack						1	1
Totals	161	200	250	110	209	215	1146

naturally comes under the Department of Public Health and Welfare (see table 4). Private physicians cannot be expected to spend the time nor the funds necessary to fight the battle alone. Yet, there can be no effective tuberculosis control without the cooperation of the private physician. There must be close cooperation between private physicians, school nurses, public health and welfare authorities and nurses and industrial health programs if this battle is to be won in Missouri. This has been well demonstrated in other states, where, by mass surveys and increased hospital facilities with an adequate staff of physicians (one physician for every seventy-five patients), the death rates have been cut so that tuberculosis has at last become a somewhat minor health problem. The law of the State of Missouri requires that all cases of tuberculosis be reported to the Division of Health. Such reporting has been neglected woefully. Without such reporting and knowledge of the number of cases diagnosed by private physicians, tuberculosis control work and future planning for the care and prevention of tuberculosis is greatly handicapped.

Table 4. *689 Deaths, Five and One Half Years Ending June 30, 1949 Periods of Stay and Percentages.*

	Under 1 mo.	Over 1 mo. and under 2 mo.	Under 2 mo.	Over 2 mo. & under 3 mo.	Over 3 mo. & under 6 mo.	Under 1st 6 mo.	Over 6 mo. & under 1 year	Under 1 year	Over 1 year	Total
Number:	132	90	222	54	105	381	97	478	211	689
Per Cent:	13.0	32.+	32.+	7.+	15.0	55.+	14.0	70.0	30.0	

MINOR PROCEDURES IN COLLAPSE THERAPY

As can be seen by comparing table 2 with table 3, minor types of collapse therapy are used more frequently than the major surgical operation and often a minor procedure is adequate. Minor collapse treatment was used 91,942 times during this last five and one half year period. Pneumothoraces and pneumoperitoneums were used 88,569 times, with pneumothorax being used more often than pneumoperitoneum, the latter being of value in lower lobe lesions and in preparation for surgery often in conjunction with phreniclasis. Phreniclasis also was of value in some upper lobe lesions and combined with pneumothorax to close stubborn cavities, particularly in the apex of the lower lobe where pneumothorax was unsuccessful alone. There were 751 phreniclasis or phrenic nerve interruptions done. The permanent type of phrenic nerve operation was used only once. Oleothoraces were used rarely, only thirty-one cases being thought suitable for this procedure. The closed type of pneumonolysis is a valuable minor procedure and was used 750 times.

MAJOR THORACIC SURGICAL PROCEDURES

A major type of procedure was used 1,045 times from January 1, 1944, to June 30, 1949. The type of procedure and the number of times it was used may be seen by referring to table 3.

The last five and one half years have brought many advances in thoracic surgery. In our experience, the use of antibiotics, mainly streptomycin, and the introduction of epidural anesthesia have played important roles.

Thoracoplasty is still the major operation of choice in most cases of pulmonary tuberculosis requiring a major procedure. It was used 835 times. There were sixty-eight pneumonectomies, seventy lobectomies and five lingualectomies.

There are many complicated forms of pulmonary tuberculosis with fatal potentialities which may be managed successfully by resection. Pulmonary resection is not a competitive form of treatment but a supplementary aid to collapse therapy procedures.

Plumbage with acrylate pack has been used more and more frequently since it was first adopted in selected cases at the Sanatorium in the spring of 1947. It produces a satisfactory type of collapse in upper lobe lesions and has a distinct advantage in that it does not produce a chest deformity.

The other types of major procedures are listed in table 3.

INFORMATION CONCERNING ADMISSION

The law provides for the admission of Missouri residents, either by order from the County Court of residence or as pay patients. Any one desiring admission to the Sanatorium who is unable to pay for care and treatment should make application to his County Court. If the Court approves the application, it sends an order to the Sanatorium, and the applicant then is furnished the necessary information and forms to be completed and is placed in line for admission, if found to be suitable for treatment. Pay patients may make application directly to the Sanatorium. Care and treatment is the same for county and pay patients.

CONCLUSIONS

1. Of the 3,515 patients admitted to the Missouri State Sanatorium, Mount Vernon, Missouri, during the five and one half year period between January 1, 1944, and June 30, 1949, 66.2 per cent had far advanced tuberculosis at the time of admission.

2. Of the 689 patients who died at the Sanatorium during this period, 70 per cent died during their first twelve months of hospitalization and 55 per cent of this number expired during their first six months of hospitalization (see table 4).

These figures show conclusively that too high a percentage of patients who enter the Sanatorium have too far advanced tuberculosis at the time of admission to obtain benefit from sanatorium treatment.

3. During this period 1,145 major procedures were done.

4. There were 91,942 minor procedures done during this period.

5. There were 3,563 patients discharged. Of this number, in the tuberculous group, 1,839 were arrested cases, 765 were improved and 461 were unimproved.

6. There were 689 patients who died. Of this group, 381, or 70 per cent, died during thir first year of hospitalization.

7. Earlier diagnosis and earlier treatment is imperative if Missouri is to continue to lower its death rate from tuberculosis and finally make this disease a minor health problem.

RHINOPLASTY: PSYCHIATRIC CONSIDERATIONS

WILLIAM A. MARMOR, M.D.,
ST. LOUIS

Since Eve offered Adam the Biblical apple the struggle for existence of the individuals of the human race has been characterized by their inborn desire to improve themselves socially, financially, politically or any other way that might occur in the complex way of life.

For a good many years the medical profession in general and psychiatrists in particular have realized that marked abnormalities in physical stature and, particularly, in facial appearances are extremely important factors in many cases resulting in inferiority complexes and frustrations. Also it has long been understood that major grotesque deformities have had a detrimental effect on the psychic development of the individual. It has been realized that major deformities, such as congenital harelip, congenital absence of an auricle, particularly detractive facial scars or powder burns or birthmarks should be corrected whenever they are prominent enough to be noticed easily and, preferably, before they have caused actual psychic disturbances. Even among people who have been made outcasts from society it has been possible, by means of careful screening, to pick out many who are worth helping who have been held down by unusual physical or facial appearances. This has been emphasized by some of the fine work that has been done in certain progressive penal institutions in rehabilitation of criminals after the correction of their facial or other physical defects.

While the detrimental psychological effects of these major deformities have been understood for many years, only in recent years has the effect on the psyche of individuals been understood when the defect superficially would appear to the outsider to be only an inconsequential defect. With the more liberal understanding of some of the subconscious workings of the human mind it has been realized that in many cases of psychic inhibitions or frustrations the causative factor is one that in the eyes of the third party would appear to be of little or no consequence. In the eyes and mind of the patient, however, due to his daily, or even many times daily, contact with his own defect, it rapidly increases in degree of abnormality to the point of becoming an obsession.

This obsession is characterized on the part of the patient by a feeling of "being different" and frequently it may become an important factor in his reaction to what, to someone else, might be the normal obstacles one comes across in the present day competitive and closely knit social existence. This feeling of "being different" may and frequently does develop into an obsessive preoccupation with one's appearance, a sensitiveness that one looks different or that one has an anomally that makes one different and therefore inferior. The next step of course is the full blown inferiority complex with the progressive difficulties that stem from it.

It is this individual sensitiveness about his own physical or facial defect, the exaggerated but poignantly felt awareness that one is different from the norm that I would like to stress in this paper. These people frequently develop tension headaches, a hostile attitude toward their environment and coworkers, a definite dislike for society in general and eventually fall into definite inferiority complexes. Unfortunately, in a large majority of the cases the psychiatric manifestations of this obsession or inferiority complex are subclinical and they go unnoticed for a long time unless the competition of social and economic life bring them to the realization of the individual himself or some understanding relative or employer.



Fig. 1.

With the realization by the individual himself, in most instances, that he has some defect that he feels should be corrected, he goes to the surgeon usually without the benefit of medical or psychiatric consultation and at times it is not practical nor routinely possible to refer them to a psychiatrist. It, therefore becomes the responsibility of the surgeon to try to determine which cases warrant correction

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The author wishes to express his thanks to Dr. Nathan Blackman of the Neuropsychiatry Dept. of the Jewish Hospital of St. Louis, for his help in coordinating the nonsurgical aspects of this paper.

and which do not, rather than blindly trying to satisfy the whims of some particularly unstable individual who may or may not have definite ideas of what he or she wants done. Those borderline cases in which the indications are not clear cut had better be screened carefully by medical and neuropsychiatric consultants before surgical correction is accomplished.

The nose, probably primarily because of its prominence in the center of the face but mostly because it is subject to racial, hereditary and traumatic influences, is the commonest object of attention of the person who is concerned with his or her facial appearance. Given a person with an unusual nose it becomes only a question of threshhold as to what the effect on his psyche will be. Vanity is a characteristic all have and no one with a detractive appearing nose fails to recognize his defect, whether he admits it or not. The amount of unhappiness it gives him depends on his ability to suppress his inhibitions. This is a privilege most persons do not enjoy and many times it results in more inhibitions and maladjustments and the resultant vicious circle.

The abnormalities of the nose customarily are divided into congenital and acquired but, for the purposes of this discussion, it is better to consider them in different groups in relation to ages and circumstances connected with them.



Fig. 2.

In the newborn the common nasal abnormalities usually are associated with some degree of cleft lip and are best corrected with the harelip as soon after birth as it can be done.

In the grade school group, injuries to the nose are relatively common and most often neglected. The cartilagenous and bony structures of the juvenile nose are so susceptible to dislocation rather than fracture that minor traumatic dislocations of the septum and nasal bones go unnoticed or neglected because they are obscured by edema. During the period of growth of these structures, after a minor dislocation, the pull of the attached muscles, as well as the interlacing stresses of the neighboring growing bony structures, progressively exaggerate the original minor deformity into one of major proportion. Injuries to the nose and septum in young children must be examined critically for dislocations and fractures, particularly of the nasal bones and, when they are found, they should be manipulated carefully back to their normal positions.

In the early teen age group the psychic or psychologic manifestations of these early childhood injuries or familial and racial abnormal physiognomies first began to show themselves. Case 1.

CASE REPORTS

Case 1 illustrates the preoperative and postrhinoplastic appearance of a girl who at the age of 10 years suffered an injury to her nose with a resultant osteomyelitis. Between the ages of 10 and 15 years she underwent three operations for a draining sinus and



Fig. 3.

sequestration of the right nasal bone. During most of this time she wore a dressing over her nose and missed a great deal of school. By the age of 15 the nose finally healed with the resultant exostosis and deformity as shown in figure 1A. By that time she was behind in school and, partly because she had an attractive younger sister as well as because of her unattractive appearance, she developed a severe inferiority complex and antisocial attitude. She made a satisfactory adjustment after her rhinoplasty.

Case 2 shows a girl of 16 who was a ward of a guardian appointed by the juvenile court because of certain aggressive antisocial acts. She felt strongly that her particularly unattractive appearance was a strong factor in her inability to cope with the problems of society and begged to have, what to her was a horrible deformity, corrected and was able to obtain the permission of her guardian. She seems to be on the way to a satisfactory adjustment since her operation.

Case 3 is one of the late teen age group which makes up a large percentage of the most favorable cases for correction of nasal defects. This particular young man had a bad looking nose of which he was particularly conscious. This was first manifested in his behavior about the time he was finishing high school when his parents noticed that he was irritable around the house, quarreled with his younger sister, was not interested in social activities and flatly refused to go to college though he had been a good student. Closer questioning, in this case by intelligent parents, revealed that he was acutely ashamed of his abnormal appearing nose and after his rhinoplasty he has gone ahead with his college work and has developed a much more normal personality.

Case 4 illustrates one case of an older group. This man was 43 years old and Figures 4A and 4C show the typical saddle nose deformity seen in the putty nose or pugilist type of injury complicated by a previous extensive septal resection in attempt to give adequate breathing space. He felt strongly that he had been handicapped since the time of his original injury, at the age of 10 years, by his grotesque appearance. He refused to finish high school, had been passed up for advancement in his work several times and had changed jobs frequently, always refusing any position requiring him to meet the public. He had made several attempts

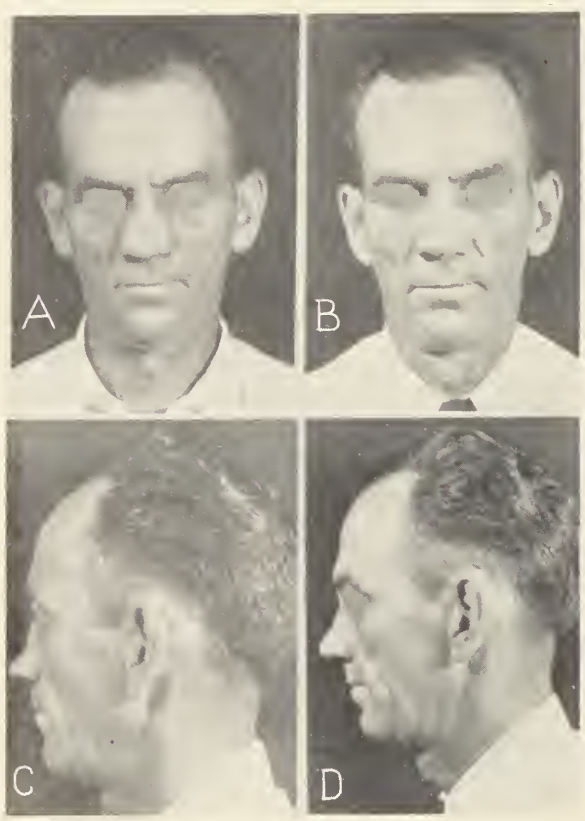


Fig. 4.

to have his appearance corrected but had succeeded only in getting a badly done submucous resection which accentuated his deformity. The reticence of most surgeons to attempt this type of case is based on their inability to get a good result without a cartilage or bone graft. With the relative freedom from danger of infection that the antibiotics have given, I felt that a preserved cartilage graft at the time of the rhinoplasty was the procedure of choice. This was done in one stage under local anesthesia with gratifying cosmetic result and an unbelievable change in this patient's personality and attitude toward his job and people in general.

CONCLUSIONS

1. Nasal deformities or abnormalities that at first glance appear to be of a minor degree, grow to many times their apparent size under the critical survey of the person afflicted with them.

2. These deformities may have profound effects on otherwise normal personalities resulting in inferiority complexes, inhibitions and obsessions of severe degree.

3. A great many of these tendencies toward personality changes can be reversed if the offending factor, namely, an abnormality in physical or facial appearance, is corrected.

4. The optimum age to correct these deformities is as early as the developmental anatomy will permit.

5. In the case of rhinoplasty the optimum age is from 16 to 20 years.

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FIND CRITICISM INJURES CHILDREN WITH READING DISABILITY

Criticism by the teacher and parents makes a child who reads poorly lose confidence in his ability to do school work and leads to the development of various emotional problems, with psychologic blocks which further aggravate the condition.

This point is brought out in an editorial in the April 15 *Journal of the American Medical Association* which says that an estimated 12 per cent of all children in the United States fail to learn to read as well as the average of their school class.

"It is doubtful that there is in these children any underlying organic lesion," the editorial says. "Emotional factors such as fear, anxiety, rivalry, jealousy, hostility for the parent or the teacher and a feeling of inferiority undoubtedly play an important role in creating these difficulties."

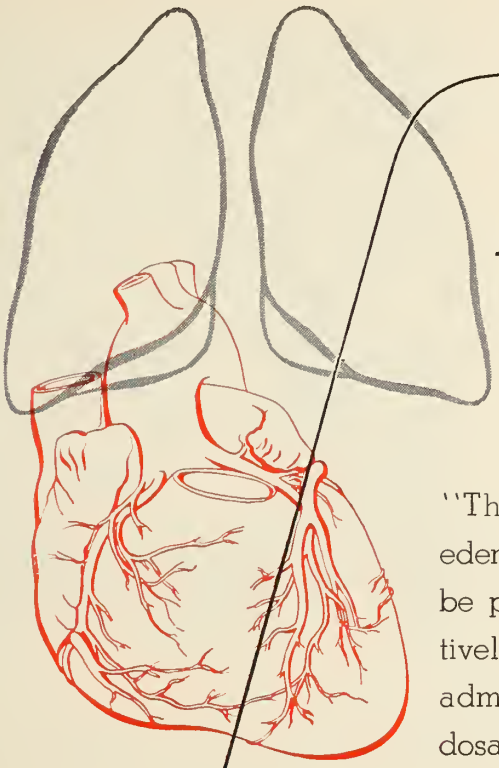
Three recent articles in medical publications pointed out the belief that the new method of teaching reading, the so-called "flash" method, is an important contributory factor in the creation of these disabilities, according to the editorial.

"The flash method employs whole words on cards with pictorial representation to develop pure visual associations," the editorial says. "The method was expanded into a phrase and later into a sentence method. The child on entering school immediately learns to read whole sentences."

Another articles in a medical publication points out that, while this method produces rapid and intelligent readers, it tests to the limit the child's power of attention and concentration, the editorial says, adding:

"These authors feel that certain minor difficulties (of vision) which were of minor importance under the older methods of teaching have now become significant."

According to one author, there were three times as many cases of reading difficulties among children who had been taught by the flash method as among those who had been taught by the older phonetic method, the editorial says.



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Postgraduate Review

PHARMACOLOGY AS AN EXPRESSION OF THE CHEMOBIODYNAMIC APPROACH TO MEDICINE*

F. W. SCHUELER, PH.D.
IOWA CITY, IOWA

IN THE DISCUSSION of pharmacologic principles it is frequently advantageous to define first the approach of medicine as a general doctrine and then to delimit within this larger framework the objectives of pharmacology. Thus, the definition of medicine as that discipline which is directed toward the maintenance or attainment of homeostasis within the human organism immediately implies the role of practical pharmacology to be that of a special division in which the maintenance or attainment of homeostasis is implemented through the use of drugs. Within the category, maintenance of homeostasis, one may identify all those specialties which come under the heading of preventive medicine and in the category, attainment of homeostasis, those specialties concerned primarily with therapeutic measures. To be sure, there will be a considerable overlapping in the two modes of approach but the recognition of such categories long has been didactically fruitful. Upon reaching this point in the classical course in pharmacology, the general role of pharmacology often is dropped in favor of an enumeration of myriads of special drug effects and procedures so that the student sometimes loses sight of the overall forest of medicine in his minute discussion of the particular details of the subject. To a greater or lesser extent, courses in other basic sciences and specialties follow the same pattern with the result that the student, even upon graduation, resembles, from the standpoint of his medical knowledge at least, an organism of high complexity but with a low degree of integration. It may be only after many years of practice that he eventually attains the high degree of operational balance between the various facets of his medical and intellectual life that he again sees the whole beautiful face of medicine itself.

From the standpoint of pharmacology, this situation is particularly lamentable for there is probably no other basic science course offered to the student that promises a greater chance of remedying this difficulty in medical gestalt. Since it is in this field that I have found my own greatest operational potential the discussion which follows will be drawn primarily from the point of view of a pharmacologist. I do not believe, however, that a great deal of revision would be required in adapting it to other specialized developments in the sciences basic to medical practice.

*Research based upon the general approach to the relationship between chemical constitution and pharmacologic action presented in this paper is being supported by a grant from the United States Public Health Service.

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CHEMOBIODYNAMICS

I have defined pharmacology from the standpoint of general medicine as that division of human knowledge devoted to the maintenance or attainment of homeostasis through the use of drugs. One of the questions which rises in the mind of the astute medical student might be expressed as follows: How can a chemical molecule, a particle of minute dimensions and relative simplicity, exert such profound effects on the morphology and function of a large and complex organism and what is it about different molecules that endows them with such widely different biological effects?

In order to approach this discussion from as fundamental a standpoint as possible, I will define a new term concerning an old subject which has in recent years become a keystone in the development of much that is new today in the field of pharmacology.

Chemobiodynamics is that study which is devoted to the elucidation of correlations which exist between the chemical constitution of various materials and their abilities to modify the function and morphology of biologic systems.

The careful teacher of scientific subjects always takes a special interest in the groundwork basic to any serious discussion so that ideas sometimes called "obvious" are nevertheless clarified before plunging headlong into the more obscure matters at hand. It has often been assumed that the terms "chemical constitution," "function," "morphology," and "biologic system" possess relatively uniform meanings in the minds of various students. Since, however, this certainly is not the case it will be necessary that these terms be defined in a unified context which may serve as a basis for their discussion. In order that the context in which these terms are defined have a structure general enough for the considerations which make up the greater portion of this treatment, it may be well to consider the philosophic foundations of this approach in some detail.

PHILOSOPHICAL FORMULATIONS

In any discussion in which uniformity of meaning is essential, the approach must begin at a point which is at least tentatively acceptable to all concerned but which cannot be proven. In short, certain postulates or axioms must be adopted from which the development may proceed. Evidence may be offered which tends to justify the use of the postulates, and inductions and deductions from them, but the postulates themselves can never be proven.

The postulational method and the principle of verifiability are at the heart of the scientific method. That is, some phenomenon has been observed and gives rise to the question of its relationship to other phenomena. Thus, one wishes to describe or interpret the given phenomenon in terms of previ-

ously organized bodies of knowledge. In order to do this, when using the scientific method, one first gathers as much information obtainable which seems pertinent to the matter and then, after a careful classification of this material poses a guess —a working hypothesis as to some relationship made apparent through the process of classification.

Let *a* represent the original phenomenon which has become of interest to the investigator. A given worker then, through his reading, his thinking, his conversations with other workers, and from his own laboratory protocols, assembles as much data which appear pertinent to the investigation as possible. It will be noted that even at this early stage of the investigation some assumptions concerning the nature of the phenomenon at hand are present in at least the "back of his mind," since he does exercise judgment in regard to the process of assembling what appears pertinent. If this were not true he necessarily would have to assemble all the facts known on all subjects, for to be completely free of bias would be tantamount to having no notion of what appeared to him as relevant. It is well that such elemental steps in the formulation of a working hypothesis and the design of an experiment be thought of as taking place almost simultaneously in the mind of the investigator. Thinking, in this regard, is not a simple process of carrying out each act of mind in a single discrete step before passing to the next, but a complex process of conditioning the growth of each thought not only by its predecessors but by its consequences. A real description of scientific method, then, must include a dynamic picture of the method when in operation, as a process taking place in a man's mind. Scientific thought is reflective thought of the highest order in which the term "re-flective" emphasizes profoundly the "negative-feed back" character of each idea in light of its consequences.

Thus, during the process of accumulating information concerning the given phenomenon *a*, the investigator undergoes changes in his idea of what is relevant. Even before the data are assembled he will no doubt have thought of various modes of classification most likely to be fruitful in the formulation of a generalized working hypothesis; this may lead to deductions that are either corroborated or not by these data. The development of the formal classification chosen as a base of operation, therefore, is preceded by more or less numerous excursions of the "free floating mind" which reflects back upon the earlier stages of the formal organization of the facts and ideas making up the actual study sheets. The development of the ground plan for experimentation is, therefore, an integral part of the experiment and the purely categorical delineation of a given application of the scientific method to the investigation of phenomenon *a* is as destructive to understanding of the nature of scientific method as is the assumption that the analysis of a cell is completed through a detailing of its elemental constituents.

The results of any deductions from the working hypothesis may or may not be corroborated by the data already assembled and the generalization chosen as the working hypothesis will be that generalization which is consistent with as many as possible of the facts available in the classification. Most deductions from the working hypothesis are, however, open questions to be tested by experiment. If the hypothesis survives a large number of such experiments in which it fairly accurately (within limits of experimental error) predicts the various results of the tests to which it is subjected, it may be glorified with the title of a theory. If, after a long time, it still survives, it might be deified as a law. At best, however, it is never anything more than a working hypothesis with long pants! The number of accurate predictions is always finite in number; the number of predictions yet to be tested—infinite. Indeed, even though there may be a sizable body of false predictions, the hypothesis may yet serve a useful purpose in the absence of a more consistent generalization or because of the fruitful hints it may yet give toward the design of further experiments leading to the discovery of more facts. In any case, and at any time, new evidence may accumulate rapidly forcing its rejection. Such is the precarious existence of beautiful theories when cavorting in the presence of solid facts. Facts are no respectors of the hypothesis that mothered their experimental inception.

Just to indicate how precarious is the existence of theories, one may consider the scientific method itself which in a sense is a kind of theory insofar as it generalizes that "exact" knowledge may be acquired by means of it. Thus, the scientific method is the method of evidence—it theorizes that evidence for or against a given idea is the way in which to determine its "truth." Now, it is a principle of logic that a theorem cannot be proven in terms of itself. Therefore, one is barred from offering evidence that the scientific method is the way to "truth." If evidence cannot be offered as proof, then what proof can be offered? Shall one have faith? Faith is belief in some idea without evidence, otherwise it is just plain belief with a series of because, because, because. . . . It is, therefore, "evident" that one must start at some point, without proof of the validity of his premises. This starting point must be merely psychologically acceptable—evidence may be offered in strengthening its acceptance but such evidence may well be inconsistent with the original premises. One inconsistency is sufficient to make one uncertain of the premises but any number of consistencies will never prove the validity of the premises. The notion that consistency may be used as the test of validity is an improvable premise based upon logic. One might add—what logic says that logic is valid? Again, since a theorem cannot be proven in terms of itself, one cannot argue the point further as argument involves some manner of logic and one is barred from its use until it has been proven valid. The roots of faith in the premises of science go deep within the human species. Evidence for the valid-

ity of the scientific method is everywhere around but even the scientific method as a philosophic doctrine has its metaphysic.

CHEMOBIODYNAMICS AND THE STRUCTURE OF SCIENTIFIC KNOWLEDGE

One's first postulate will, of course, be that the method of evidence—the scientific method—leads to valid results and that logical deductions from working hypotheses built upon evidence will be considered valid until further evidence dictates to the contrary. The philosophic framework of chemobiodynamics will take as an additional postulate another idea, which has abundant supporting evidence but no proof in the strictly logical sense. I will term this idea the fundamental development.

Natural units A, combine or associate due to various factors to form a system B, of interdependent units and this new system B, functioning as an integrated whole may serve as *a* unit by association or combination with similar units B in the formation of a still higher system C and so on.

Outlining this principle in more detail (see table 1) it is easy to grasp the relation of various scientific fields to one another. Using the idea expressed in this table certain other principles become clear. These are given in the following summary:

1. The number of known units on the successive levels increases almost without limit as one proceeds upwards (see table 2). As a corollary one realizes the countless number of species and unique individuals within a species (on the eighth level) that must be possible through gene combination. Hence, the statistical assurance of a unique individuality for each human being.

2. Units of any given level interact only with units of the same level, e.g.:

a. Atoms interact with atoms in a molecule, not with the molecule as a whole, though the state of the molecule as a whole conditions the interaction and is of fundamental importance.

b. Molecules interact with the molecules of a cell, not with the cell as a whole, though the state of the cell conditions the interactions and is of basic importance.

c. Neutrons interact with fundamental particles in some atom, of some molecule, of some cell, of some organ, of an organism, but not with the organism as a whole, though the state of the organism through the various levels conditions strongly the outcome of the interaction and is of fundamental importance.

3. The actual process of interaction of one unit on a given level with other units of the same level to form a unit on the next higher level is through some differentiated aspect of the given unit with respect to its constituent units on the next lower level, e.g.:

a. Atoms interact to form molecules through that differentiated aspect of their being which they possess in regard to the completeness or incompleteness of their outer electron shells. Hence, it is not the whole atom which is primarily involved in its interaction with another atom to form a molecule but an association of the two brought about through

Table 1.

Level of Integration	Physical Unit of the Given Level	Remarks
0	Electrons, protons, positions, neutrons, etc.	Since we have no knowledge of units from which these particles are ultimately derived, we call this the zero level of integration—the 0 is purely relative to our state of knowledge.
1st	Atoms	This level and the 0 level embrace the active interests of atomic and nuclear physicists with their appropriate techniques.
2nd	Molecules	Molecule in the ordinary chemical sense including both micro- and macro-molecules. Level of interest for "pure" chemists.
3rd	Molecular system	e.g., Any individual isolated enzyme system with its associated coenzymes, ions, substrates, etc. Levels 2-4 of greatest interest to biochemists and enzymologists.
4th	Polymolecular system	Level of particular interest to cytologists and enzymologists. This conception-level embodies the idea of a metabolic pool containing many enzyme systems held in an integrated functional relationship.
5th	Cellular system (poly-polymolecular system)	Level of interest of the cytologist and cytochemist.
6th	Polycellular or tissue system	This level is of particular interest to histologists, cytologists and pathologists.
7th	Polytissue or organ	Of particular interest in classical organology and physiology, e.g., isolated hearts, smooth muscle preparations, etc.
8th	Organism (poly organ system)	This term organism is carried in the sense of a multiorgan-organism—like a mammal.
9th	Society	Some feel that this level includes only human societies in which it is argued that the differentiated aspect of mind is too undeveloped in lower species for the degree of integration necessary for a new level.

Table 2.

Level of Integration	No. of Units
0	6 —fundamental particles
1st	97 —elements
2nd	600,000 to 800,000 —known organic compounds but potentially, i.e., humanly, inexhaustible others.
3rd	800,000!—would be an absurd lower limit to the number of molecular systems possible.
4th and above	—an inconceivable number of combinations

their respective outer electron shells as differentiated aspects of their being. The state of the given atoms, however, strongly conditions this interaction and is of basic importance.

b. Likewise, it is not a whole molecule that interacts with another whole molecule but rather, interactions between so-called functional groups that make up differentiated aspects of their being. The states of the given molecules, however, strongly condition the interaction and are of basic importance.

c. Similarly a whole man does not interact with another whole man in the formation of a society—rather is the union brought about through that differentiated aspect of their being which one calls mind which is in turn the functional aspect of a differentiated structure—brain.

4. Two important factors serve to characterize the general state of being of a given unit.

a. The degree of complexity of the given unit as measured by the number of units of the next lower level incorporated into it, as well as the complexity of the functional manifold in which they are associated. I will term this its *degree of complexity.*

b. The degree of integration of the unit as measured in terms of the number of functional interdependencies between the next lower level units making up the given unit as they interact in the structural manifold. I will term this its *degree of internal integration.*

These two measures, degree of complexity and of integration, embody only the barest general notion of the state of the unit. Only a delimitation of the time relationship of the factors involved in these two measures, not only of the level of integration of the given unit, but of all lower levels it embodies, would approach describing the uniqueness of the given unit. Even then there would be required a rigid definition of the medium of its interaction which is of course the universe as a whole—what ever this means! One might, as in thermodynamics, make use of idealized closed systems, but even then the discussion of the simplest natural units is inordinately complex to say nothing of a unit of the third level and above. Nevertheless the two "simple" measures defined will be useful in the discussion to follow.

One point that is immediately clear is that a given unit may have great complexity and low integration or vice versa.

In chemobiodynamics it will be found that the differentiated aspects of molecules that appear to be of primary significance are not as a rule the functional groups of chemistry but rather certain patterns of functional groups in a structional manifold which conditions their functional potentialities—these have been termed moieties.

5. Finally, it is clear from the principle embodied in the fundamental development that all levels are linked functionally with one another just as they are linked structurally through the process of successive combination to give more and more complex dynamically interacting aggregates. And, since the types of combinations of units possible are determined by the energy factors operating on any given level it is clear that the constitutional aspects of the units on any given level are the resultant (emergent?) of the functional aspects eminent on that level. In other words, constitution and function are complementary to one another. This means that the constitutional aspects of the chemical and physical levels are expressions of their dynamic potentialities and may, therefore, be used as a means by which the potential functional activities of these entities may be interpreted or described when they are in a process of interaction.

It now becomes clear why the chemical constitution of an agent implies its potentialities for initiating modifications in function on higher levels of aggregation. The chemical constitution of an agent, in being complementary to its possible associations with other units of its level which make up the next higher level of integration, and by interacting with these units, modifies the functioning of this next higher level. Since the higher level is a unit in a still higher level, its change in function may result in a change in function of the still higher level of which it is a part and the effect is, thus, propagated upward through the various levels. The effects of the chemical agent on each given level will be recognizable only if the worker uses the technics developed for observation on each successive level. It is, therefore, clear why a pharmacologist cannot afford to ignore important advances in any field represented throughout the various levels. Also, it explains why the pharmacologists "appear" as a group, to work in a heterogeneous manner. Actually if a pharmacologist were to study the effects of a chemical compound completely he must be familiar with technics on all levels. In practice this is impossible, so that any given pharmacologist usually operates between only one or two levels.

It seems to me that the choice of chemical agents as the unit factors effecting changes via the level to level chain of interaction is purely arbitrary from an ideal standpoint. Thus, the radiologist using x-rays or neutrons, the bacteriologist using cells, the histologist with his tissues, the organologist with his organs, and the psychologist or sociologist with their respectively defined units operate equally well on essentially the same scheme. Indeed, there is nothing uniquely important about chemical molecules as agents in this spectrum of level by level interaction: each level is itself the envisionment of its own units and these units serve both as manifolds for the interactions of lower level units and as units in higher level manifolds. The implications run not only up from level to level but insofar as the higher levels are the manifolds within which the interactions of the lower level units interact, the higher levels condition at each stage the character of the matrix within which the lower levels act and implications move downward through the hierarchy of "geared-in" systems. It is important that this reciprocal relationship of the various levels be kept in mind, especially since one

otherwise might feel that chemobiodynamics was cognizant only of a one way path—upward.

Actually the reasons for the choice of chemical compounds as the primary agents in this discussion are first, that this is mainly a treatment on chemobiodynamics and, secondly, that methods of chemistry have built up a body of well characterized and reproducible units that lend themselves relatively easily to operational definition. A discussion of the effects of chemical constitution on the modification of behavior and morphology in biologic systems should, however, have a considerable "carry-over" for workers with other level units, for the methods of approach are basically similar—differences being due to details in the operational definition of the primary units of interest.

One may now define more precisely the meaning of the terms "chemical constitutions," "biologic systems," "function," and "morphology" as used in the definition of chemobiodynamics.

Chemical constitution will here denote all constitutional features of a functional or morphologic type associated with units of the first and second levels of integration.

Biologic system will here denote any unit included on level three and above.

It is clear in this latter case that many units of the third level are derivable from "nonliving" systems but since the emphasis here is on chemobiodynamics most such third level systems are derived from bio-sources, i.e., various purified enzyme systems.

Function will here denote the dynamic aspects of any level of integration insofar as these are expressible in terms of the operational procedures employed in the investigations of those levels.

Morphology will here denote those features of a unit of a given level describable in terms of a geometry appropriate to the operational procedures employed in the investigations of that level.

As pointed out by numerous workers on all levels of investigation morphology and function go hand in hand; in fact, they are but two faces of the same coin so that much information about function becomes clear only if morphology is taken into account, and vice versa.

In connection with chemobiodynamics, a drug molecule or chemical compound is to be thought of as a matter-energy-system of given design (constitution) which is of relatively low order complexity and which enters into a dynamic functional relationship with similar low level (molecular) unit components of another matter-energy-system of high complexity (the biologic system) to result in modifications in the functioning on the higher levels of the complex system on some or all of its levels of integration.

Since the constitution of the molecule is complementary to its dynamic potentialities they may serve as logical correlates with the functional modifications they produce in the various higher levels of the biologic system into which the compound is introduced. Chemobiodynamics endeavors to reveal these correlations.

In any scientific doctrine, there are two extreme ways of viewing the subject matter. Stated in general terms they are the following:

1. The world may be viewed purely as a matter to be described accurately—no explanation, interpretation or notion of "cause" being implied—the point of view of "pure" empiricism.

2. The world may be viewed purely as a matter for interpretation in which description is but the starting point for understanding—the point of view of "interpretive" theorism.

In the present discussion of chemobiodynamics it is to be pointed out that all generalizations, in regard to the relation between chemical constitution and biologic action, are to be thought of purely as correlations. Thus, for the extreme empiricist these generalizations may be regarded simply as working hypotheses, valuable only insofar as they serve as tools in the design of new experiments. For the "interpretive" theorist they may have a deeper meaning as genuine approximations to some underlying, fundamental ordering principles of nature. I am not concerned in the present discussion in defending either point of view; my main aim is to define an approach to chemobiodynamic problems which serve as an operational method for the elucidation of correlations without unduly interjecting any particular bias in regard to the philosophic implications of any correlations that exist.

It may be pertinent to point out here, however, that few scientific doctrines are purely of type one or type two. Similarly, scientific workers are usually individuals that hold some admixture of the two extreme world views. Also, while each of the two extreme points of view has held sway at one or another time it has become fairly clear in recent years that the most efficient and personally satisfying orientation has contained the two outlooks in approximately equal measure. Allegorically one might say that technics are the hands and legs of science and working hypotheses the eyes and mind. One must have arms and legs to go anywhere but to give himself direction he requires eyes and a brain.

Finally, it must be stressed that any generalization is an induction on the part of the mind and by virtue of this a bias containing unknown quantities. Since chemobiodynamics generalizes that correlations may be found between chemical constitution and biologic action it is necessarily a biased point of view containing unknown quantities. It must be remembered, however, that before deductions can begin in any scientific pursuit this initial inductive step must be taken. It must be expected that many other, literally a non-denumerably infinite number, of inductions are possible at any corner stone of science: the number of deductions that are possible after the initial induction has been caried out are usually (in the mathematical sense) denumerable in number. Judgment of the value of an induction must be based upon the operational ease with which deductions from the induction may be tested. In this respect the approach through chemobiodynamics appears to be quite satisfying

since it is highly operational in its method of testing deductions from its generalizations. Thus, if a given constitutional aspect of a molecule is thought to be responsible for the biologic effect of a given class of compounds, then the constitution of the compound may be altered in other respects to see if it is still biologically active in the purported way. On the other hand, the assumed necessary constitutional aspects of the compounds may be replaced to see if they are always necessary for the given biologic response.

It is, therefore, clear that working hypotheses in chemobiodynamics will be of two types:

1. Hypotheses of Sufficiency, in which, if the given constitutional aspects are present then the given biologic response will always be obtained, although other constitutional aspects may or may not be also sufficient.

2. Hypotheses of Necessity, in which the given constitutional aspects must be present for the given biologic response to be obtained although the given constitutional aspects may or may not always be sufficient in themeslves.

Occasionally one may be delighted by a hypothesis that appears both necessary and sufficient—this would, if the history of other sciences are representative, quite rarely be the case.

Whatever be the future progress in this approach it is easily seen that chemobiodynamics is a highly operational method which is bounded only by the practical synthetic and theoretical methods of organic chemistry together with the mighty task of testing and interpreting the actions of these materials in the light of experimental method and doctrine forming the great superstructure of biology.

A few demanding souls have asked—"what is the point of a hypothesis of necessity but not sufficiency or a hypothesis of sufficiency but not necessity?"

An answer here would be that a considerable portion of the fundamental theorems of mathematics and of theoretical physics, of the theories of chemistry and biology and, in general, in all of science are only expressions of necessity or sufficiency. For an individual to persist in his emphasis that such hypotheses are of little value is to expose his ignorance of the power of such expressions all through human knowledge.

CHEMOBIODYNAMICS AND GENERAL PHARMACOLOGY

One of the objects of pharmacology as a science is that of determining the mechanism by which chemical materials act in initiating the responses they do in biologic systems. In order that the meaning of this statement be as clear as possible, consider the possible course of action of a hypothetical compound that produces various effects on different levels.

Now, whatever the eventual response may be to this substance it is first and foremost a chemical and physical entity and its initial interaction must take place on the physical and chemical levels of integration. Pharmacologists, therefore, who attempt to clarify this initial interaction must make use of physical and chemical technics and theories in acquiring data relative to this level and in the formulation of working hypotheses as guides in their research. One may term this level of pharmacologic research the molecular level or first level of chemobiodynamic action.

The initial interaction of the drug with cell constituents on the molecular level may lead to an inhibition or acceleration of a certain process on the molecular system level. The pharmacologist at this stage makes use of the technics and theories of the biochemist and enzymologist in acquiring and describing data relative to this level. One may term this level of pharmacologic research the molecular system or second level of chemobiodynamic action.

The biochemic response initiated in the given molecular system may lead to accelerations or inhibitions of processes taking place in other molecular systems associated with the given molecular system by way of their association in what has been termed the "metabolic pool." Technics and theories used in the study of these effects are still the domain of the enzymologist and biochemist but since the effects involved have been ramified to other molecular systems than the initial system affected, research in the study of these effects may be termed research on the polymolecular-system level or third level of chemobiodynamic action.

Biochemic responses initiated on the second and third levels may result in the redistribution of cellular parts insofar as the polymolecular systems embody nuclei or mitochondria. The pharmacologist must be able to recognize these effects and his research must make use of the technics and theories of the cytologist. Such research may be termed research on the cytologic or fourth level of chemobiodynamic action.

Cytomorphologic or functional changes initiated in individual cells often result in alterations in the structure and function of the tissues of which those cells are a part. The pharmacologist who would gather data in this respect must make use of the technics and theories of the histologist and pathologist and such research is carried out on the fifth level of chemobiodynamic action.

Alterations in the structure of a tissue often result in profound changes in the structure and functioning of the organs of which the given tissue is a part. Researches directed at clarifying the effects on these organs, must make use of the technics of the organologist appropriate to the given observed effects, and the research on this level will therefore make the utmost use of the classical organ preparations of the physiologist. Such research may be termed research on the sixth level of chemobiodynamic action.

If the eventual effects on the lower levels affect primarily or secondarily the operation of that great differentiated aspect of the animal, his central nervous system, then the technics and doctrine of the neurophysiologist or the psychologist and psychiatrist may be employed. With respect to man this may involve his interactions as a unit of society and technics of the sociologist may be called upon. Researches on these levels may be termed chemo-

biodynamic research on the seventh and eighth levels. Research on the eighth level requires a keen knowledge of the medicolegal as well as the social scientific aspects of the effects produced.

It is now clear that while workers in many fields make use of chemical and physical agents in the solution of problems appropriate to their particular level, the pharmacologist, alone, is primarily interested in the agent as it reveals its presence in operational terms at all levels of integration. It is this omnilevel interest which defines the point of view of pharmacology and explains how, as a scientific doctrine, it manifests its position in relation to the other scientific fields without possessing technics, as such, all of its own.

As pointed out before, no pharmacologist could work intensively on all or even a few of the levels mentioned. Rather, he must restrict himself to one or at most two levels in order to work effectively with the appropriate technics. Yet his training must be broad enough to permit sufficient insight into the relation of all of the pertinent levels of integration as they are hooked inevitably to his own interests through mechanisms of progressive structural and functional aggregation.

An astute reader would certainly ask—then why compound a new term, chemobiodynamics, to express what is already well implicit in pharmacology. The answer to this question is, I think, clear when one recalls that most texts defining the subject matter of pharmacology emphasize especially an organization of scientific material about drugs which is designed primarily for students of medicine. The emphasis in these texts is consistent with their intended use in courses on pharmacotherapeutics in which the fundamental theories and facts of pharmacology are organized for the most ready development of the subject matter as used in medical practice.

In the present discussion, the emphasis is on the relation of chemical constitution to action and, therefore, is organized on a ground plan which seems most suitable to that end. Since this article is written with no intention of presenting detailed applications of pharmacology in therapeutics but more for the consideration of individuals interested primarily in appreciating in a fundamental sense the role of chemistry in the design of pharmacologic agents and their mechanism of action it was thought advisable to choose a name consistent with this emphasis.

Indeed, the term "biochemorphology" has been used effectively in the description of moiety and other characteristics of molecules of pharmacologic interest but again I have felt this name to be too narrow since it emphasizes primarily the morphology of molecules of pharmacologic interest. The prefix "chemo-" alone, on the other hand, carries with it both connotations of chemical morphology as well as chemical properties (functionality) and the suffix "-biodynamics" implies an emphasis on action in a biologic sense. Thus, for a discussion on the relation of chemical constitution to biologic action, it was felt that the term "chemobiodynamics" emphasizes as uniquely as possible the notions developed.

While much information is being derived from the biochemic, physiologic, histochemical and other levels of pharmacologic action, development in the primary level of pharmacodynamic action is in its infancy. The relation between the constitutional or chemobiodynamically potential aspects of molecules in terms of the first level of chemobiodynamic action is only beginning, yet it is fundamental to the whole chain of effects which follow. It is, therefore, of the utmost importance that the working chemobiodynamicist gather information from the chemist and physicist regarding the intimate constitutional properties of the "simple" molecule as a drug, and from the protein, biochemist and physical-chemist regarding the constitutional aspects of the micromolecules and macromolecules which serve as both primary receptors and components of the higher levels of integration, thereby achieving an understanding of the effects essential to its propagation upward through still higher levels.

Naturally, a given agent may show many initial sites of interaction on the first level of chemobiodynamics which result in numerous effects of operationally detectable character on the higher levels. Clearly, the action of an agent may be more obvious on certain given levels as its effects are more appropriately studied by means of the technics characteristic of those given levels. In addition, while the chemical constitution of an agent conditions it initial or primary interaction on the first level of chemobiodynamic action, the knowledge of this interaction alone is by no means sufficient in the determination of eventual responses on higher levels. Of fundamental importance to responses on the higher levels will be the character of organization of the level by level aggregates themselves. In short, a given "key and lock" may be found in the doors of rooms containing different items—hence, the importance of rigidly defining the biologic system to which the chemical compounds are applied.

Ideally, the relationship is one of drug design appropriate to the physical and chemical constitution of the initial receptors. Since the problem of receptor design will for some time be lacking in any great detail, however, the solution of chemobiodynamic problems must make use of an empirical method of approach in which the necessary and, or, sufficient constitutional features of active agents is carried out by means of the synthesis of series of constitutionally related materials and the subjection of these materials to biologic tests in regard to the response to be investigated.

Basic to the practical aspects of investigation in this work is training in synthetic organic chemistry for workers in chemobiodynamics and a keen knowledge on their part of the new theoretic phases of electronic, sterio and quantum chemistry if they are to describe the pertinent moieties of their drugs. An investigator, so trained with sufficient understanding in the biologic sciences as to appre-

ciate from a working standpoint the relation of the higher biochemical and biologic levels to the physicochemical levels, has awaiting him an almost virgin field overly ripe for research—a field of such great interest to the creative imagination in experimental design that it may be necessary to revise G. N. Lewis' famous statement concerning physical chemistry to read—"Pharmacology! includes everything that is interesting and excludes everything that is uninteresting." Before my enthusiasm for this subject overwhelms me, however, I will pass on to some other considerations.

A little reflection in regard to the principles already laid down points out that correlations of chemical constitution with biologic action may be achieved only if the agents producing the given response have the same site of action on the first level of chemobiodynamic interaction. Thus, many materials will produce a state of muscle inactivity. This does not mean that they necessarily will have any general, common chemical constitutional features unless the initial site of action be the same for all. For example, the hypnotic barbiturates, the local anesthetics and curare, when applied appropriately, may show a similarity in action in regard to a decrease in motor activity. It would seem to be of little advantage, however, to look for constitutional correlations common to these diverse groups of agents knowing their grossly different sites of initial interaction. Great errors in interpretation of chemobiodynamic data usually will not arise from such obvious sources, therefore, if gross anatomic differences in the sites of action are recognizable. Problems in chemobiodynamics become especially acute, however, when the structural sites of action are close together as when the different agents act on the same cell or even the same enzyme molecule of the same cell. Thus, two agents may act on the same enzyme molecule of a cell, and yet not interact at the same site insofar as they may act on different faces of this enzyme molecule or with different patterns of chemical groups in the same face.

That these difficulties should arise are not surprising for progress in any science requires constant particularization and differentiation with regard to the dynamic entities observed or conceived. To wish away these difficulties or to fail to face them squarely can mean only defeat for the development of the new science. In facing these problems those who work in chemobiodynamics must use as test objects carefully standardized responses and, at first, as nearly as possible, isolated simple systems. Especially valuable will be individual isolated enzyme systems constructed from purified or even crystalline enzymes prepared in a standardized manner in which all ingredients of the system are quantitatively added in exact proportions under controlled conditions. The series of constitutionally related drugs tested on such systems may be expected to yield consistent results by this method even at an early stage in the development of this science—results that may not be obtainable at first by the use of whole animals or organs.

On occasion, if the response on the part of a whole animal, organ or tissue seems unique enough in regard to the site of its initial action and the agent may be applied as ideally as possible to that site or may be controlled well enough in its application to insure eventual action in regard to that site, then tests including more highly organized systems may be allowable. Whenever experiments are carried out on these highly complex systems, however, one may expect to obtain results that are more and more difficult to justify in the light of the basic approach of chemobiodynamics unless one has worked carefully through the interactions on all the levels leading up to the level of apparently contradictory action. Satisfactory developments in this science depend to the utmost upon the care which is taken in elucidating the action of the agent on each succeeding level before worrying excessively about apparently contradictory evidence in regard to higher levels. The whole study is based upon the notion of a chain or network of interactions initiated at a given site or sites and no link in the chain or network can be postponed for study without reservation. This step by step method, while not seemingly as dramatic as the semi-accidental discovery of, say, a curative agent for cancer is, yet, the only method open if one desires a true science of chemobiodynamics basic to medical pharmacology.

The first level of chemobiodynamic action involves units of two types—atoms (and their ions) and molecules. (Actually, in the general classification, these aggregates make up the first and second levels of integration.) One may include the actions of subatomic particles insofar as they represent agents that produce their effects apparently through ionization and other modifications of atoms and molecules.

The constitutional character of atoms insofar as it has importance in chemobiodynamics is most clearly revealed in that masterpiece of generalization—the periodic table of the elements. It is of interest to point out that some time before Mendeleef constructed his first periodic table that a similar table of the elements had been worked out by a practicing physician (J. Blake in 1848) on the basis of the similarities of the biologic actions of various ions.

THE LEVEL TO LEVEL INTERACTION EFFECTED BY DRUGS

Let us pause now and take stock of a few details of drug action in the light of the preceding development. I have considered a drug, with reference to the great hierarchy of biologic levels, to be a system of atoms linked functionally and morphologically by electrical forces implicit in the organization of the atoms themselves insofar as they are relatively stable systems of the fundamental particles. The molecule, however, represents a species that possesses functional potentialities above and beyond the properties of its isolated atoms as does

the atom with reference to its constituent fundamental particles. The character of the molecule is derived from its functional organization as an aggregate of atoms and the functional capacities of the constituent atoms are not lost but merely modified and compounded to give the resultant (emergent?) properties of the molecule. In a quite real sense the molecule of a given chemical compound is not merely the result of "compounded" morphologic entities (the atoms) but the result of a compounding of functional capacities as well. Does this not give a clue to a possible pathway toward the organization and relationship of higher level units? To be sure, the enzyme protein molecule does act in an analogous sense like the nucleus of the atom insofar as the enzyme monitors the interactions of smaller molecules (the substrate) in its neighborhood. In general, it is useful to consider at every level of integration certain entities as functionally dominating the activities of other entities—as the nucleus of an atom dominates its envelope of electrons.

Thus one sees in table 1 the representation of the polymolecular system as a distinct level of integration. It is made up of many enzyme systems holding a peculiar functional relationship with each other. Consider the following scheme:

$S_1 \text{——} E_1 \longrightarrow S_2$
$S_2 \text{——} E_2 \longrightarrow S_3$ polymolecular system
$S_3 \text{——} E_3 \longrightarrow S_4$ (a system of enzyme systems)

$S_n \text{——} E_n \longrightarrow S_{n+1}$

In this scheme, E_n denotes the nth enzyme system and S_n its appropriate substrate. The reactions illustrate the idea that each enzyme system (e.g. E_1) acts upon a given substrate (S_1) and that the product (S_2) serves as the substrate for another enzyme system (E_2). Certain general corrolaries follow from such a scheme.

1. Each enzyme system is dependent upon some previous system for the manufacture of its substrate unless this substrate is supplied from the environment.

2. Each enzyme system supplies substrate (as its own product) to some antecedent system. Some or all of the product might, of course, be lost to the environment.

3. Inhibition of any intermediate enzyme system leads to a building up of an excess of its own substrate due to the fact that the previous system continues to supply it.

4. Inhibition of any intermediate enzyme system results in an eventual depletion of the substrate for all following systems.

Building up of product by any given system usually has an inhibitory influence on that same system due to the principle of mass action equilibria so that the inhibition of any intermediate enzyme eventually leads to a slowing down of all previous reactions.

The single path chain reaction easily may be generalized in the form of a network of chain reactions in which a given enzyme may receive substrate in varying amounts from different previous reactions and operate upon it to yield more than one product which is, in turn, involved in more than one latter process. The concept of interdependence is, however, essentially the same.

The scheme really shows that while a given enzyme system may exist and act independently, that through the medium of the "metabolic pool" it acts as a single operator in an extended "bucket brigade" and as a result the compound, or polymolecular system, is a new functional organization level in its own right.

In general, the cells of the organism may furnish to their environment products which are not manufactured by other cells in the organism but are necessary for the action of systems that they contain. In this way, one approaches the question of symbiosis, tissue, and organ development, and the process of chemical and physical interdependence offers a useful mode of viewing the development of the whole organism. One thinks immediately of the brilliant contributions of Spiegelman, Beadle, Tatum and many others to operational understanding of the concepts of fields and gradients as used in classical biology. One thinks also of the gene-templates as possible sources "stamping" out duplicates or partial duplicates of themselves and thereby determining the possible pathways for development both in regard to intracellular composition, tissue, organ and organismal development. In this way each level casts ahead its conceptual shadow and forecasts, in part at least, the mode of aggregation and functional plan which is to follow in higher levels. The actual pathways chosen among those that are possible will depend upon the larger manifold or environment that the combining and reacting entities are developing.

Thus again, in a quite real sense, the molecular systems act as nuclear foci dominating the functional organization of the polymolecular system, just as the enzyme protein molecules dominate the molecular system and as the molecular organization of a given molecule dominates and moderates the functioning of the atoms in its matrix. These latter in turn possess their nucleus which dominates the envelope of electrons. What a colossal organization is the cell—compounded out of numerous polymolecular systems as units which are often, cytologically speaking, functionally and morphologically differentiated in this super-mechanism. One needs not call upon "vital forces" to appreciate the functional potentialities of the cell as a living thing. Its degree of complexity and mode of integrating an immense manifold of highly complex functional networks is surely commensurate with the activity one operationally terms "living"! And what about that "compound of cells," the tissue, a still higher level as it forms the organization of directed cellular function and morphology, to say nothing of the morphologic and functional intertwining of the tissues in the compound organ and, still later, the emergence at a yet higher level, of the fully developed polyorganoid or organism. Is there not sufficient complexity and increase in func-

tional capacity at each step in this immense biologic superstructure to satisfy as to the commensurability of physical complexity with life function? Does it take any of the wonder out of the situation or any of the mystery from the object of reflection when one recognizes that the resultant human being is a part of nature reflecting on the "nature" of nature? For those who seek divinity in the life situation it is there—imminent in the potentiality for compound combination and intrinsically maintained in the character of the fundamental particles themselves while realizing itself in every advance of evolution. We are but an expression of what has been called the "psychozoic era."

But what about drug action? Imagine for a moment a molecule of a drug introduced into a man. It will find its way by means of mechanisms already present via the blood stream and through dynamic membranes to the molecular machinery of some cells. Perhaps it interacts with only one chemical pattern of one species of enzyme of the given cells, but this is sufficient to modify the normal rate of operation of this enzyme on its substrate. The result may be to retard and thereby involve the enzymes dependent on this first one for their substrate and the effect is ramified until its influence is felt at remote regions of the cell. If these cells be part of the neuronal network then still more remotely is the effect propagated to ever wider functions and processes on any and perhaps every level. If the drug has its initial effect on chemical processes of an endocrine cell, then the ramification of effects may take longer, due to a less rapid propagation of the level to level involvement, but in the end the general pattern of action is the same. The degree of functional and morphologic integrity of the organism is the characteristic which makes possible its high degree of functional capacity in adapting to an everchanging external environment, though it is also the characteristic which makes it so susceptible to minute changes taking place on the low levels of its *milieu interieur*. It may be that the effect of the drug slows down processes (pathologic ones) which have already developed, in which case it aids in the reestablishment of a functional balance—and achieves a great measure of homeostasis—a therapeutic effect.

Why is it possible that products of different chemical constitution effect different changes on the various levels of organization? Again, because the functional potentialities of the drug are stamped upon it in chemical constitutional terms and dictate its possible types of initial interaction at the molecular levels. The eventual effects, of course, depend on and are conditioned by the biologic superstructure through which its effects are channelized and one will succeed in relating chemical constitution to action only if one proceeds through the way outlined by nature—first through the relation of chemical constitution to action in simple isolated enzyme preparations and then, later, to actions on the succeeding levels. If one doubts the closely knit creative development of evolution, he need only compare the structures of hemataporphyrin and chlorophyll. Statistically, what are the chances that this complex porphyrin nucleus could arise independently as a primary mechanism component in gaseous exchange processes for those remote kingdoms of biology—animals and plants—unless this be through a common origin? How conservative is nature in the preservation of chemically useful structures that when once she has developed them they are preserved through endless divergent and emergent species! How priceless is chemical design in nature!

ACKNOWLEDGMENT

I am indebted to Drs. R. M. Featherstone, E. G. Gross, and I. H. Pierce for criticizing the manuscript. I owe special thanks to the graduate students in pharmacology at the State University of Iowa who have been my main motivation in developing the detailed subject matter used in a course in chemobiodynamics from which the general considerations of this article were drawn.

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WIDE SCALE STUDY OF INCOMES OF PHYSICIANS IS UNDER WAY

The first full scale survey of physicians' incomes in nine years is under way, it was announced April 7.

The study is being made jointly by the Bureau of Medical Economic Research of the American Medical Association and the Office of Business Economics of the United States Department of Commerce. The survey will cover 125,000 doctors, or about 62.5 per cent of the nation's total of 201,278.

"There is evidence that the national averages in some surveys have been too high because physicians who do not have bookkeepers to fill out questionnaires do not reply in sufficient numbers," says an editorial in the April 8 *Journal of the American Medical Association*.

"Some of the previous surveys have given biased results. For example, those with small practices have not been represented properly. Accurate postwar data on physicians' incomes are needed to permit more accurate estimates of how much the American people pay to physicians."

Selection of the names will be from the punch card files of the Bureau of Medical Economic Research by a formula which eliminates any partiality. To every other name will be sent a questionnaire requesting income information for 1949.

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*Orent-Keiles, E., and Hallman, L. F.: The Breakfast Meal in Relation to Blood-Sugar Values, Circular No. 827, United States Department of Agriculture, Bureau of Human Nutrition and Home Economics, Agricultural Research Administration, Dec., 1949.

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Clinical Conferences

CLINICAL PATHOLOGIC CONFERENCE

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THE PATIENT, a 64 year old letter carrier, entered the hospital on May 31, 1948, complaining of weakness and general malaise which had grown progressively worse for the last six months. He was short of breath and had pain in the right chest. There was a weight loss of 20 pounds in the last year. There was anorexia but no change in bowel habits. There was no cough nor hemoptysis.

Physical Examination.—The patient was in no acute distress. The color of the skin was a pasty pale yellow. Cervical, axillary and inguinal lymph nodes were palpable. There was a scar in the right anterior chest wall extending into the anterior axillary fold. The expansion of the chest was limited on the right. Tactile fremitus was absent over the lower two thirds of the right lung field. There was dullness to percussion and absence of breath sounds over this same area. A few moist rales were heard over apex on the right. The left lung fields were normal. The heart was of normal size with a regular rhythm, rate 100 per minute. No thrills nor murmurs were present. The blood pressure was 130 systolic and 60 diastolic. Examination of the abdomen failed to reveal any abnormalities. There was no edema of the extremities. The reflexes were physiologically normal.

Laboratory Findings.—Urine analysis was normal. The erythrocyte count was 3.45 million with 9 grams of hemoglobin. The leukocyte count was 5,600 with a normal Schilling count. The hematocrit was 32 per cent. The blood sugar and nonprotein nitrogen were normal.

Past History.—The patient had had measles, mumps, and pertusis. He had slight exertional dyspnea. There was nocturia one time each night.

A tumor mass was found in the right axilla on November 24, 1947, which measured 4 inches in diameter but was not attached to the underlying structures. The mass was smooth, firm and not tender. Removal was advised. The firm, hard tumor was removed (at another hospital) on Jnuary 24, 1948.

X-ray examination on February 7, 1948, revealed multiple small calcium deposits distributed throughout both lung fields varying from 1 mm. to ½ cm. in size. There were several calcified glands in the hilus area, no evidence of infiltration nor consolidation in either lung and there was nothing to suggest neoplasm in the lung. The hilar nodes were enlarged, especially in the right peritracheal area, which might be due to tumor metastases. Cardiac shadow was slightly enlarged but the aortic shadow appeared normal.

X-ray therapy was begun on February 19, 1948.

Course in Hospital.—An x-ray of the chest made on June 3, 1948 (fig. 1) revealed a homogenous area of increased density over the lower two thirds of the right lung field which extended up the lateral chest wall. There was no shifting of the mediastinum. The upper third of the right lung and the entire left lung failed to show evidence of infiltration or consolidation.

A thoracentesis was attempted at that time but no fluid was obtained. On June 6, 1948, thoracentesis was done and 20 cc. of thick, purulent, bloody material was obtained with difficulty. Examination of this fluid showed many pus cells. Repeated cultures of the fluid were negative. No malignant cells were found. The same type of fluid was again aspirated on June 14 and 21. A course of deep x-ray therapy was begun and the patient was discharged on July 30, 1948. At that time he still had x-ray evidence of a homogenous shadow over the lower half of the right lung.

The patient's temperature during the entire hospital stay showed a daily afternoon rise to from 102 to 103 F.

Second Admission.—The patient was readmitted to St. Mary's Hospital on September 1, 1948, with



Fig. 1. X-ray of the chest made June 3, 1948.

essentially the same complaints as on his first admission. He had been jaundiced for about ten days at the time of the second admission. There was further weight loss. A freely movable mass about 8 cm. in diameter was present in the right posterior lateral chest wall. Dullness and absence of breath sounds were noted over the lower half of the right lung. The liver was palpable at the level of the umbilicus and was firm, nodular and nontender. There was a one plus pitting edema of the feet and ankles. Generalized lymphadenopathy was present.

Urinalysis showed two plus proteinuria. The erythrocyte count was 4.3 million with 12 grams

of hemoglobin and the hematocrit was 38 per cent. The leukocyte and Schilling counts were normal. The sugar and nonprotein nitrogen were normal and the Kahn reaction was negative.

Course in Hospital.—The mass in the right chest wall proved to be a subcutaneous abscess. This was aspirated and about 50 cc. of thick mucoid material, brownish in color, was obtained. This showed many polymorphonuclear cells but no organisms could be cultured. A small nodule about 1 cm. in diameter was felt in the center of the abscess cavity. The patient's jaundice deepened, he grew progressively

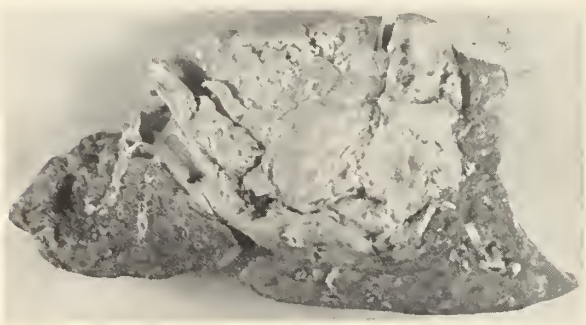


Fig. 2. Large tumor mass involving the right middle and lower lobes.

weaker and died on Septembr 18, 1948. He had an afebrile course during this admission.

DISCUSSION

G. O. Broun, M.D.: This patient had had shortness of breath, pain in the right chest and weight loss before his first hospital admission. There were no symptoms referable to the lungs at that time other than slight dyspnea.

X-ray therapy was begun in February of 1948.

The history of his last admission does not seem to contribute anything to the problem.

The physical examination revealed enlarged lymph nodes and the scar of the previous operation. Expansion of the chest was decreased on the right, and there were a few rales in the apical area.

The generalized enlargement of the lymph glands might suggest leukemia but this is not borne out by the laboratory work. The x-ray in June 1948 showed increased density of the right lung field.

Thoracentesis was attempted without success. Later 20 cc. of thick, purulent, bloody material was obtained. Examination of this fluid showed many pus cells but no bacteria nor malignant cells.

When the patient was next admitted to the hospital, the liver was palpable, firm and nodular. There was some pitting edema of the feet and ankles.

On the basis of these findings, namely, a generalized lymphatic gland enlargement, normal white and differential counts, Hodgkin's disease could not be considered as a possibility. The reports of the biopsy are not given. The development of liver involvement with hard, firm nodules and jaundice does not fit the picture of Hodgkin's disease too well, but it does make one wonder if some type of malignancy, the exact nature of which was not determined, should not be considered.

R. O. Muether, M.D.: There does not seem to be anything particularly characteristic about this patient. I was impressed, however, by the fact that he had so few unusual laboratory findings except for the definite anemia; also the rather rapid increase in the size of the liver which suggests the possibility of metastasis from a malignant tumor of the lung or bronchus which was probably concealed by the fluid in the chest. Dr. Knight considered, and justifiably so, the possibility of amebiasis, primarily, I believe, because of the type of fluid aspirated. Would you discuss that possibility, Dr. Knight?

William A. Knight, Jr., M.D.: I think the diagnosis of amebiasis would run a poor second, but there are some features in this history which suggest this as a possibility. The tumor which was removed was described as being 4 inches in diameter and located in the right axilla. To me, that is a large tumor and suggests some type of abscess which had undergone degeneration. The fact that this patient had pain in his right chest and an enlarged liver suggests amebiasis. It is known, from experience in the army, that soldiers who had amebiasis and were treated might go for months or



Fig. 3. Biopsy specimen from the mass in the right axilla. Note the masses of dark, small cells that are better preserved about the blood vessels (240 times).

years without a recurrence and then develop a pleural effusion on the right side from which thick purulent and bloody material could be aspirated. Usually amoeba or bacteria were not found in such fluid, but pus cells in large numbers were. Such patients had a septic type of temperature which is consistent with amebiasis. Frequently, the leukocyte count was not elevated but, as a rule, it was increased between 8,000 and 16,000 with a shift to the left in the Schilling differential. The fact that this patient did not have diarrhea or any change in bowel habits is not necessarily significant. Many patients with amebiasis do not have changes in their bowel habits and many complain of constipation. This patient's liver was large, nontender, firm and nodular and this is against the diagnosis of ame-

biasis since the livers of patients with amebiasis usually are large, tender and smooth. Generalized lymphadenopathy in a cachectic man does not bother me too much because the lymph nodes usually can be palpated in this type of individual. The size of the lymph notes were not mentioned.

I remember two patients, one of whom apparently had had acute amebic hepatitis and pleurisy while in Japan. A year later he entered a veterans' hospital with chest pain. The first x-ray was normal but the second, when taken in full inspiration, showed a tumor mass just above the diaphragm. Aspiration produced thick pus which contained polymorphonuclear cells but no parasites. Another patient had had amebic hepatitis with pleural effusion on the right side a year or so before I first saw him. He then developed a pleural effusion on the left side from which thick blood stained pus was aspirated. The pus of amebic abscesses usually is described as being similar to anchovy sauce in color and consistency but those I have seen were yellowish, streaked with blood.

LEROY SANTE, M.D.: When this patient was first seen the x-ray picture of the chest showed multiple calcareous deposits distributed throughout both lung fields which were mentioned for the sake of completeness. They probably represent nothing more than healed foci of childhood tuberculosis. At least, they showed no change throughout the entire

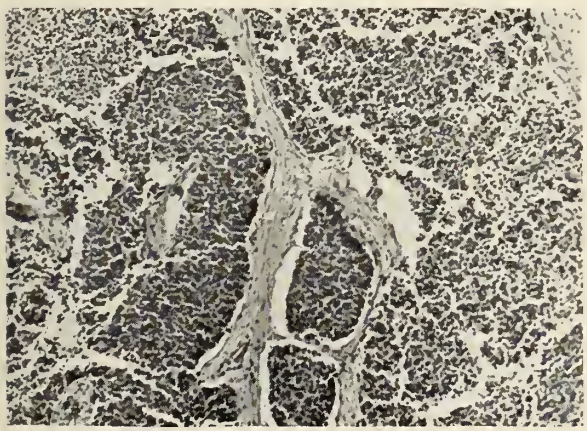


Fig. 4. Section from the tumor mass in the right lung. The round and oval cells are infiltrating throughout (240 times).

course. As far as the x-rays are concerned, all one can say is that there was a massive pleural effusion but nothing about what may be hidden in the underlying structures. Subsequent examination showed a diminution of the fluid, perhaps due to the aspirations, and the presence of a tumor mass is suggested (fig. 1). The other lung was free from involvement during the entire three months' period. With a temperature of from 102 to 103 F. in the afternoon, one would think of some type of infection. I have, however, seen chronic empyema which lasted for two and a half years with relatively little fever. Fluid in the chest, if due to a primary tumor of the lung, usually is not purulent and blood streaked but is serous in character. If a massive tumor of the lung breaks down, it breaks down in the center and may become an abscess but it does not produce free fluid in the pleural cavity. Incidentally, the adenopathy in the other lung is not sufficient to cause any concern and does not suggest the possibility of a lymphoma. I think that in this case, we are limited to the fact that there was a large pleural effusion and that on subsequent examination a tumor mass was seen. That tumor mass was not necessarily a new one.

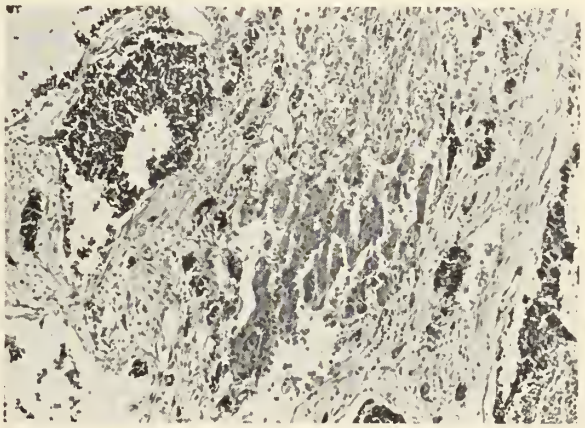


Fig. 5. Section of liver showing degenerating liver cells surrounded by masses of neoplastic cells (240 times).

PATHOLOGIC REPORT

The autopsy revealed the following: The skin and sclerae were icteric and there was a generalized lymphadenopathy. On the right chest wall and parallel to the anterior axillary fold, there was a healed incision 6 cm. in length. More posteriorly there was a fluctuant rounded mass 10 by 8 cm. The abdomen was prominent and the liver edge was palpated at the level of the iliac crest.

Serous Cavities.—The right pleural cavity contained about 100 cc. of a thick yellowish-green purulent material which communicated with the fluctuant mass in the posterior wall through a necrotic opening between the ninth and tenth ribs. There were firm adhesions throughout binding the lung to the diaphragm, pericardium and parietal wall. The abdominal cavity revealed an extremely large, greenish, nodular liver which displaced the intestines downward. There were about 200 cc. of yellowish fluid in the abdomen and pelvis.

Heart.—The examination of the heart revealed that the tumor mass from the right lung had extended to the wall of the right atrium. Otherwise, the examination of the heart gave normal findings.

Lungs.—The right lung weighed 1,460 gms. It was badly torn in removing due to the dense adhesions between it and the surrounding structures. The middle and lower lobes showed diffuse infiltration by a yellowish-brown, necrotic tumor tissue (fig. 2). There were numerous large lymph nodes about the bronchi and main vessels; all of them were necrotic. The upper lobe was compressed and atelec-

tatic. The left lung weighed 310 gm. and revealed a few small, calcified nodules.

Liver.—The liver was enormous. It weighed 6,160 gms. and presented a coarsely nodular surface. The nodules were gray and yellowish-brown and varied from 2 to 5 cm. in diameter. Cut section of the liver revealed the necrotic metastatic masses throughout the entire thickness of the organ.

Spleen.—On the surface of the spleen there were two tumor nodules measuring 3.5 and 2 cm. in

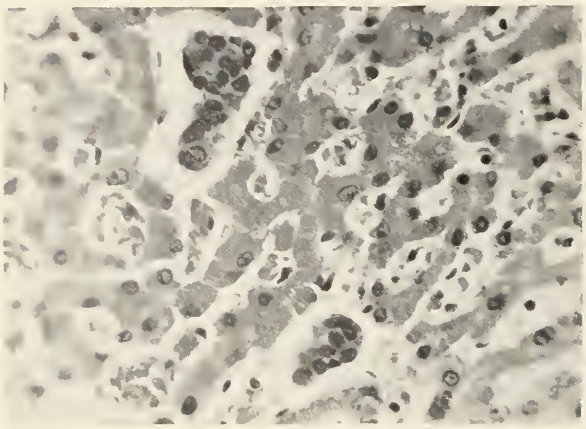


Fig. 6. Section of liver revealing clumps of tumor cells in the sinusoids (460 times).

diameter. All the lymph nodes examined were invaded by tumor tissue.

The rest of the gross postmortem examination was irrelevant.

Microscopic Examination.—The tumor mass removed in January from the right axilla was diagnosed as a pericytoma or a bronchiogenic carcinoma. It revealed a cellular and uniform picture with small cells, either oval or spindle. Many mitotic figures were present and there was a great deal of necrosis. The tumor cells about blood vessels were well preserved but away from the blood vessels there was much necrosis (fig. 3).

Sections from the right atrium revealed invasion of the myocardial fibers by small, dark and basophilic tumor cells showing many mitotic figures. Sections from the tumor mass in the right lung and from the mediastinal nodes revealed essentially the same picture. Solid cords and masses of the small and anaplastic tumor cells were seen throughout (fig. 4). The picture was definitely one or a small cell bronchiogenic carcinoma (oat cell).

Sections of the liver revealed many metastatic foci of the same type of tumor (figs. 5 and 6). Microscopic study of the spleen (fig. 7) and adrenals also demonstrated metastatic involvement.

Final Anatomic Diagnosis.—Bronchiogenic carcinoma (oat cell type) of right lung: metastases to liver, spleen, heart, adrenal and mediastinal and axillary lymph nodes; emphysema of the right pleura; ascitis; jaundice.

DISCUSSION

This case presented itself with a tumor mass in the right axilla and, despite an indefinite chest place at the time, turned out to be a case of bronchiogenic carcinoma. Willis, in his textbook on cancer, makes the statement that "more diagnostic mistakes due to metastases are made in cases of bronchiogenic carcinoma than in any other type of malignant disease." He goes on to say that the patient with a cancer of the lung may present itself with a large nodular liver simulating metastatic involvement from a malignancy in the gastrointestinal tract. Several cases have been studied here in which a liver punch biopsy finally established the diagnosis.

These small cell bronchiogenic carcinomas are the most malignant type of lung cancer. They grow faster and metastasize more widely than the other types. In an autopsy series by the Department of Pathology of St. Louis University, eighteen of twenty-one (85 per cent) oat cell carcinomas of the bronchus had spread to the liver, while only seven of forty-one (17 per cent) squamous cell carcinomas gave hepatic involvement.

The incidence of the different types of bronchiogenic carcinomas varies with various authors. Most American authors report the squamous cell type as

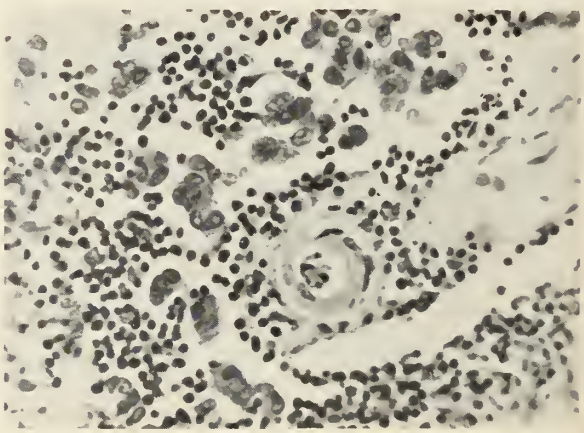
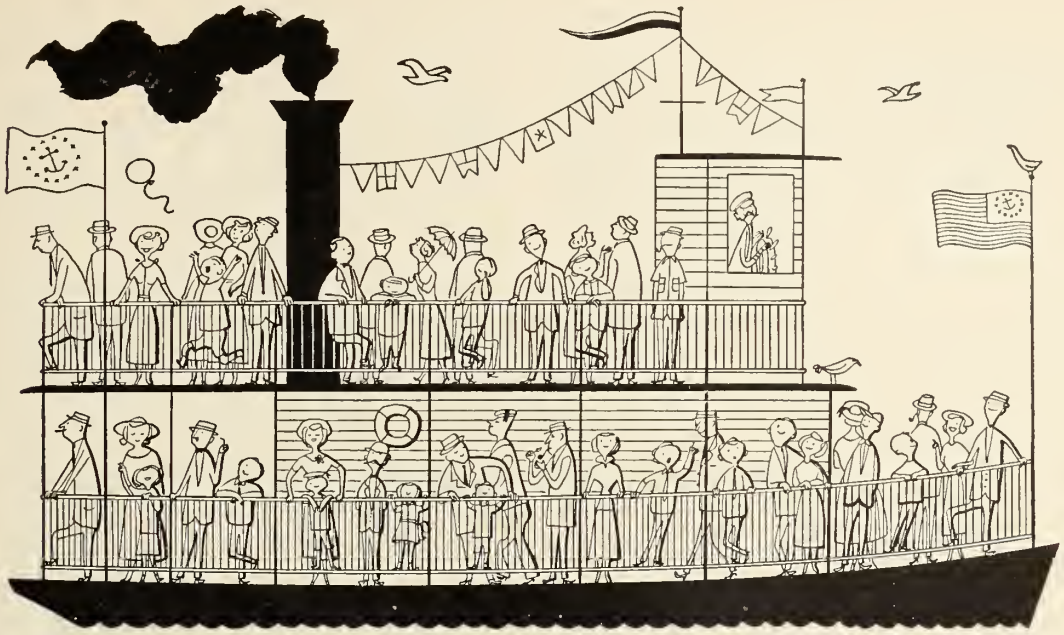


Fig. 7. Section of spleen revealing tumor cells invading a Malphigian corpuscle (460 times).

the most common, followed closely by the oat cell type. Willis, working in Australia and England, collected a long series of cases and in his experience the small cell type of bronchiogenic carcinoma is the most common, followed by the squamous type.

Cancer of the lung is becoming more and more common. Bronchiogenic carcinoma is one of the most common types of cancer found in the autopsy room. This increase in the incidence of cancer of the lung cannot be explained satisfactorily on the basis of improved methods of diagnosing it.



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Case Reports

COMPLICATIONS OF THYROID THERAPY IN MYXEDEMA

WITH A REPORT OF A CASE OF CEREBRAL VASCULAR ACCIDENT

LUCIEN W. IDE, M.D.
ST. JOSEPH

THERE ARE FEW diseases in which more consistent and satisfying results are expected than in the treatment of myxedema with thyroid. Complete return to health is anticipated and usually occurs. Patients may be kept on thyroid for indefinite periods because it provides the natural hormone and is true substitution therapy. This is well exemplified by Burgess' report of a case controlled with desiccated thyroid for fifty-two years.[1] However, occasional serious complications and fatal accidents happen which provoke caution in the administration of thyroid preparations to patients with this disease.

The serious complications are cardiovascular and may be precipitated by the effect of the thyroid hormone on the circulation. These complications are not surprising when it is realized that arteriosclerosis is common in myxedema and that the administration of thyroid increases the velocity of circulation and blood volume in patients with the disease. Such alterations may be sudden and violent enough to produce acute left ventricular failure in a heart with inefficient muscle due to coronary sclerosis or myxedematous changes. Congestive heart failure also can be precipitated or made worse. Angina pectoris or myocardial infarction can result from an increased demand on an inadequate coronary circulation. It is easy to understand how cerebral vascular accidents could result from these circulatory changes in the presence of cerebral arteriosclerosis.

A complication that is less serious but more frequent is muscle pain or cramps which, according to Means, is related to migration of water or to anoxia due to sudden increased demand for oxygen, perhaps before it can be supplied by the circulation.[2]

COMPLICATIONS

The initial administration of large doses of desiccated thyroid may produce symptoms of thyroid intoxication, including aching and marked tenderness of muscles, and sometimes a fever, occasional nausea, and rarely vomiting.[8] Frank thryotoxicosis should be avoided by beginning treatment with small doses, by careful observation of the patient and by basal metabolic studies.

Angina pectoris may develop or be made worse during treatment with thyroid. This complication is more apt to occur in older people with long standing myxedema. On the other hand, young patients with anginal symptoms before treatment are more apt to obtain relief.[3] The difference in the effect in these age groups suggests that angina pectoris in young patients with myxedema is due to myxedematous changes in the heart muscle rather than coronary sclerosis.

The danger of myocardial infarction during the administration of thyroid has been emphasized. It occurs less frequently than angina pectoris. Smyth found only eight cases of myocardial infarction in a review of the literature in 1938 and added one of his own.[4] Nichol reported another in 1940, bringing the total to ten.[5] There is little doubt but that others have gone unreported, but a review of 470 cases of myxedema revealing only one case of coronary occlusion further substantiates the rarity of myocardial infarction.[4]

There is danger of inducing or increasing the severity of already existing heart failure. Acute left ventricular failure may result from a too rapid increase in the metabolic rate.[6] Thyroid must be used cautiously and in sufficiently small doses in myxedema with cardiac failure to avoid aggravation, but some hormone should be used.[7] It may be effective in treating heart failure in myxedema when digitalis is not.

Reports of cerebral vascular accidents occurring during the treatment of myxedema with thyroid are rare, if they exist at all. No attempt was made to survey the literature completely, but no such case was found during the ten years before 1948. However, such an instance was observed recently which is believed worth reporting because of its rarity.

CASE REPORT

A 51 year old female was admitted on July 9, 1948, complaining of general weakness and lassitude for eight years. Her skin had become dry and her hair had been falling out for five years. Hoarseness had developed during the previous three years, and her face had become puffy. Mental and physical sluggishness developed, and she complained of increased susceptibility to cold. Various medications had been tried to relieve the symptoms but she was quite sure that she had not taken thyroid. For several years she had been slightly short of breath on exertion but there had been no precordial pain, orthopnea or more than slight dependent edema.

A physical examination revealed a slowly reacting female. Her voice was low and hoarse. Her skin was thick and dry and the hair scarce in the axillae and in the pubic region. The reflexes were sluggish. The thyroid was not palpable. The blood pressure was 120/90, the heart sounds were weak and there was a grade I apical systolic murmur transmitted only slightly into the axilla. The heart was not enlarged. There were no abnormal pulmonary findings and the edge of the liver was just palpable below the costal margin.

The hemoglobin was 9.6 grams per 100 cc. There were 3,560,000 red blood cells and 7,500 white blood cells. The Kline exclusion test for syphillis was negative. A basal metabolic rate was minus 46 per cent, and the

Consultant, Internal Medicine, Thompson, Brumm and Knepper Clinic, St. Joseph, Missouri.

blood cholesterol was 296 milligrams per 100 cc. An electrocardiogram revealed a rate of 65 beats per minute, diminished amplitude of the QRS complexes and isoelectric T waves in the standard leads. An x-ray of the chest indicated that the heart was at the upper limits of normal in size and that the lung fields were normal.

On July 14, 1948, an initial dose of 1 grain, U.S.P., desiccated thyroid (Armour's) was given. She was seen on July 19 because of facial numbness and dizziness. She did not complain of shortness of breath or precordial pain. These symptoms seemed to subside when ½ grain of phenobarbital was administered twice daily. Her blood pressure on July 27 was 160/90. On July 31, when getting out of bed in the morning, she suddenly felt weak and noted difficulty in speaking. There was associated weakness of the left arm and left leg. Her blood pressure was 150/100. There was definite weakness in the grip of the left hand, extension of the left foot and in the extension and flexion of the left knee. There was slurring of her speech and a droop of the left corner of her mouth, but the tongue protruded in the midline. The ankle and knee jerks were equal but there was a slightly positive Babinski sign on the left.

She was hospitalized from July 31 to August 15, 1948, and made a partial recovery from the left hemiplegia, which had become fully developed with increased biceps, knee and ankle reflexes and definitely positive Babinski and ankle clonus. Thyroid was continued without interruption, and the myxedma was finally controlled on 2½ grains of the U.S.P. desiccated preparation per day. An examination a month later revealed nearly a complete clinical recovery from the hemiplegia but a painful left shoulder, elbow and hand with stiffness and swelling developed and remained for several weeks after the neurologic signs had disappeared.

COMMENT

A cerebral vascular accident cannot be proved in this instance, but it is reasonable to assume this diagnosis was correct on clinical grounds. This clinical picture suggested thrombosis of a cerebral vessel involving the motor area on the right side rather than hemorrhage because of the lack of headache, mental confusion or coma, and because of the relatively rapid recovery. On the other hand, increase in blood volume and velocity of flow that is believed to be associated with administering thyroid in myxedema would better set the stage for hemorrhage than for thrombosis. And, it is not so easy to conceive of encephalomalacia, resulting from an increased demand by nerve tissue associated with stimulated metabolism by thyroid on a deficient cerebral circulation, as it is to understand myocardial infarction resulting from an increased demand on an inadequate coronary circulation due to an increased load produced by a similar increase in metabolism. Unfortunately, a spinal fluid examination which might have helped to decide whether the cerebral vascular accident was a hemorrhage or thrombosis was not done.

An initial dose of 1 grain of desiccated thyroid was not considered excessive in the absence of precordial pain, cardiac enlargement, definite signs of cardiac failure or severe arteriosclerosis. However, in retrospect, a reduction of the dose or discontinuation of the drug might have been appropriate a few days before the accident when the patient complained of pain behind the eyes, numbness of the face, and had an elevation of the blood pressure to 160/90. In the future, I believe such symptoms and findings should suggest the possibility of an impending cerebral vascular accident, when myxedema is being treated with thyroid.

ADMINISTRATION OF THYROID

To avoid complications and accidents that sometimes result fatally, it is agreed generally that small initial doses of thyroid should be used. It should be increased gradually with continuous observation of the patient for symptoms such as precordial pain or signs and symptoms of cardiac failure. If the blood pressure rises, caution should be used in increasing the dose. However, blood pressure changes are variable during the administration of thyroid in myxedema, and an elevation is not constant.[2] Particularly in patients more than 50 years of age with appreciable arteriosclerosis, cerebral symptoms should be taken seriously to avoid cerebral vascular accidents.

Appropriate initial doses of thyroid are difficult to state specifically in individual instances. A decision must be influenced by the age of the patient and the condition of the cardiovascular system. Special care is indicated in patients more than 50 years of age and others who are definitely arteriosclerotic or have signs of heart disease with particular attention being paid to evidence of left or right heart failure, angina pectoris or history suggesting a previous myocardial infarction. Means has indicated that serious results will be unusual if the initial dose is not more than 1½ grains, U.S.P., thyroid daily.[2] Others have advised no more than ½ grain as the initial daily dose in patients showing arteriosclerosis or coronary disease because of the danger of precipitating coronary thrombosis.[8] It may be necessary to keep the basal metabolic rate at a level below normal with signs and symptoms of myxedema remaining to avoid increasing or precipitating angina pectoris. A dose of from ¼ to ½ grains (0.15 to 0.13) of thyroid, U.S.P., daily may accomplish this instead of 1 to 2 grains.[9] Hurxthal has warned that patients with myxedema and angina pectoris should be given ¼ grain daily desiccated thyroid as the maximum initial dose and has pointed out that hypertension, abnormal electrocardiographic changes or obvious arteriosclerosis is of little help in predicting a course of events.[3] On the other hand, with only three cases of angina pectoris and one of coronary occlusion in the 470 cases of myxedema referred to by Smyth, the numerical danger of such complications appears to be relatively slight.[4] However, there is little reason that the control of myxedema should be handled as an emergency, so small initial doses, particularly in patients more than 50 years of age, should be the rule.

SUMMARY AND CONCLUSIONS

1. Serious complications during the treatment of myxedema with thyroid preparations are rare.

2. The serious complications are cardiovascular.

3. Thyroid preparations should be administered with caution because the control of myxedema is not emergency therapy and care may avoid accidents. The administration of thyroid is discussed.

4. A case of cerebral vascular accident during the control of myxedema with thyroid is reported.

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PHYSICIAN TRAINING PROGRAMS IN HOSPITALS SHOW INCREASE

Intern and residency programs in hospitals approved by the Council on Medical Education and Hospitals of the American Medical Association have increased during the last 10 years.

The council's annual report, made public in the April 15 *Journal of the American Medical Association*, shows there were 9,398 approved internships available as of April 1, which compares with 9,124 a year ago and 7,998 in the prewar year of 1940.

Approved residencies offered physicians for further training in the specialties totaled 18,669 as of April 1, as against a year ago and 15,172 two years ago.

The increase of 814 internships over the last four years involves virtually the same number of approved hospitals, 799 and 798, respectively, for 1950 and 1946. This trend toward a greater demand for intern service is a significant factor in considering the present shortage of interns, the council says.

Approved internships are now offered in all but four of the states. New York, with 1,464 positions available, leads in the number of internships, followed by California with 897, Pennsylvania with 837, Illinois with 702 and Ohio with 495.

Internships unfilled on Sept. 1, 1949, numbered 2,340, or 24.9 per cent of the total offered. A year ago the vacancies reported numbered 1,779, or 19.7 per cent of the total.

"While data regarding the number of graduates of foreign medical schools serving in approved hospitals is not presently available, the number of these physisions seeking intern training must be taken into account, as well as graduates of medical schools in this country, when considering the disparity between the number of internships offered in approved hospitals and the number of interns available," says the council.

It also points out that a significant factor in the present shortage of interns has been the decrease in the number of 18 month and two year internships available, with a consequent increase in the annual demand for interns by hospitals which formerly offered appointments only on alternate years.

There are 4,292 residency training programs being conducted in 1,079 approved hospitals, the report shows. The specialties for which there are the greatest number of approved programs are: Surgery, 600; internal medicine, 528; pathology, 417; radiology, 375, and obstetrics and gynecology, 374. The number of vacancies reported was 1,179, approximately 6 per cent.

Commenting editorially, the *Journal* says in part:

"It is evident that a point has been reached in the residency field where the number of positions available in approved hospitals will exceed appreciably the number of potential applicants. The greatly increased demand for residency training which existed in the postwar period has been largely met.

"In the next few years candidates for appointment to residency positions will be drawn primarily from interns completing their service. It is apparent that there will not be a sufficient number of interns available to fill all positions offered. Further, an increasing proportion of medical school graduates have indicated their interest in general practice rather than in training and, later, practice in a specialty."

The purpose of the council's report is to provide physicians with a source of information on graduate training which will be helpful to them in making their plans for intern and residency training. Of interest is that the council again has set up standards for residencies in general practice, an initial list of hospitals approved in that category appearing in the current report.

The report was prepared by Drs. Edward H. Leveroos, William R. Albus, William W. Corbett, and William W. Southard, all of Chicago.

REPORT NEW TREATMENT FOR CARBON MONOXIDE POISONING

Treatment of suffocation from carbon monoxide gas by injections of procaine hydrochloride, a local anesthetic, is reported in the April 8 *Journal of the American Medical Association* by three Los Angeles doctors.

Seventeen of a group of 23 patients who received the new treatment made good recoveries, Drs. Edwin W. Amyes, John W. Ray and Norman W. Brockman of the College of Medical Evangelists and University of Southern California School of Medicine say.

The remaining six patients either died or did not fully recover. In this group the drug was given long after the exposure to carbon monoxide, or there were additional complicating factors, according to the doctors.

All except one of the 23 patients had become unconscious in a room in which there was no ventilation and where an open gas flame was burning.

Procaine hydrochloride previously had been used by doctors in France to treat prolonged coma due to carbon monoxide poisoning. They reported startling improvement in a few cases, the Los Angeles doctors say. Treatment of this condition theretofore had been unsatisfactory.

Studies indicate that carbon monoxide suffocation results in a disturbance of the blood supply of the brain. The Los Angeles doctors believe that part of the effect of procaine hydrochloride in carbon monoxide suffocation may be due to stimulation of the brain.

BRUCELLA SUIS INFECTION TREATED WITH AUREOMYCIN

CASE REPORT

DELFORD H. BOAL, M.D.
ST. LOUIS
AND
A. H. ISHII, M.D.
ST. LOUIS

Brucellosis is an extremely common disease in the dairy and packing industry. Treatment has been extremely unsatisfactory until the advent of streptomycin and sulfadiazine. This fairly satisfactory combination probably will be supplanted by aureomycin which is even more effective.[1,2,3]

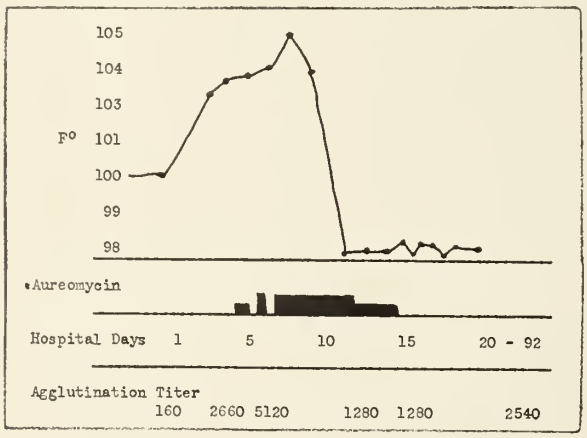


Fig. 1.

The following case is reported because it illustrates the prompt response which can be expected in a proven case of brucellosis and because the causative agent was Brucella suis. Only a few such cases have been reported as treated by aureomycin.

REPORT OF CASE

A 34 year old Negro male was admitted to the St. Louis County Hospital on August 6, 1949. He had been a packing company employee for twenty months handling fresh and frozen meats.

Ten days prior to admission he began to have fever daily beginning at from 2:00 to 3:00 p. m. and accompanied by profuse sweats. He complained of occipital headache, malaise and weakness. Five days before admission he developed a cough which produced yellow sputum.

He did not appear acutely ill, was oriented but lethargic on admission. Oral temperature was 101 F., pulse rate 88 per minute, respiration 20 per minute, blood pressure 130 80. The skin was warm and dry on first examination but cool and moist thereafter. Discrete, nontender lymph nodes were felt in the epitrochlear, inguinal and axillary areas. A grade II systolic murmur was heard at the apex of the heart. The liver was felt 4 centimeters below the right costal margin and the tip of the spleen was felt.

From the Medical Service, St. Louis County Hospital.

Leukocyte count was 6,750 per cc. Schilling differential count was 37 per cent segmented, 32 per cent stabs, 22 per cent lymphocytes and 9 per cent monocytes. Urine analysis showed specific gravity, 1.022; no sugar and 1 plus albumin. Microscopic examination gave normal findings.

Chest x-ray was normal. Two blood cultures were taken on the eleventh and thirteenth days of illness and were positive for Brucella suis in tryptose phosphate broth. Agglutinin tests for Brucella was positive in a titer of 1:160 on the eleventh day of the disease and reached a maximum titer of 1:5120 on the fifteenth day.

During the first six hospital days the fever followed a septic course reaching a peak of 105.2 F. on the sixth day.

Aureomycin was started orally on the fifth hospital day with a trial dose of 250 mg. and 500 mg. was given on the sixth day. The patient tolerated the drug well and 500 mg. was given every six hours from the seventh to the twelfth day. The dose was then decreased to 250 mg. every six hours until the fourteenth hospital day when it was stopped. A total or 13 gms. of aureomycin was given.

Remarkable clinical improvement occurred as a result of the aueromycin treatment. (See figure I) The temperature fell to normal in twenty-four hours and did not rise above 99.4 F. at any time after that and the patient felt much better. Malaise and headaches disappeared, he felt stronger and was soon up and around. On the fifteenth day, the agglutinin titer dropped to 1.1280. The patient was discharged from the hospital on the seventeenth day which was the twenty-seventh day of the disease.

The patient has been completely asymptomatic for three months and has returned to his work. The brucella agglutination titer on November 6, 1949, was positive in a dilution of 1:2540.

Aureomycin was of benefit, immediately and consistently, in a group of forty patients treated in Minneapolis and in Mexico City by Spink et al.[2] The majority of these cases were due to Brucella melitensis and abortis. The average dose of aueromycin was 2 gms. daily in divided doses for two weeks.

Infections due to Brucella suis have been treated with aureomycin, but the number of cases so treated is small.

The case reported responded well to aueromycin therapy and has not relapsed despite a total dose which was less than that used by Spink. Aureomycin is known to be effective in the treatment of human brucellosis caused by Brucella abortus and melitensis, and our experience in the treatment of Brucella suis supports that of others, that it is useful.

St. Louis County Hospital.

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PRESIDENT'S PAGE

House Resolution 6000 amends the federal social security act to establish in Section 107 of the act a system of total and permanent disability benefits for all covered employees. The act has passed the House of Representatives and is now being considered by the Senate Committee on Finance.

The Board of Trustees of the American Medical Association presented a statement before the Senate Committee on February 28, 1950, as follows: "Total and permanent disability is often a condition over which the individual who is disabled and his physician may exercise control. This subjective control which may be exercised by the individual multiplies the opportunity for malingering and actually takes the program out of the insurance category. We oppose any program which places a brake on the incentive of the sick and disabled to desire recovery. To initiate a federal disability program would represent another step toward wholesale nationalization of medical care and the socialization of the practice of medicine. The program as now proposed would not accomplish the entire nationalization of medical care but the inevitable expansion and liberalization of the program which surely would follow makes probable its eventual accomplishment. The steps in liberalization are not hard to visualize—such as payment of benefits to dependents of disabled covered persons, removal of the time lag of six months and substitution of temporary disability benefits, then eventually full cash sickness and disability provisions. We would then have nothing less than a total national compulsory sickness program."



The House of Delegates unanimously opposed Section 107 of H. R. 6000 on March 27, 1950. Copies of the resolution adopted by the House, containing the statement by the Board of Trustees have been sent to Missouri Representatives in Congress. Members are urged to contact their representatives in Congress regarding this bill.

W. A. Bloom

Editorials

THE CENTENNIAL SESSION

The hundredth anniversary meeting of the Missouri State Medical Association is now history. A total of 2,430 persons registered. This number is 50 per cent greater than at any previous meeting of the Association.

It is difficult to determine which events stood out—the Annual Banquet with the entertaining address of the noted commentator, Alex Dreier; the outstanding floor show staged Tuesday evening with the St. Louis Medical Society and the St. Louis County Medical Society as co-hosts; the color television brought to the session through the cooperation of Smith, Kline & French Laboratories; the outstanding scientific papers; the fine program arranged by the medical technologists; the fine discussion by Joseph S. Lawrence, M.D., of the American Medical Association's Washington office on "Dangers of Government Subsidies"—all of these and other features were well received.

An editorial in the *St. Louis Globe-Democrat* on March 29 not only gives a good summary of the meeting but also is indicative of the past leadership of the profession. It points out as well the great opportunity to bring even greater glory to the Association.

The editorial follows:

"MEDICAL LEADERSHIP

"The end of a century is a significant milepost. For this reason, and for many others, the centennial convention of the Missouri State Medical Association which ends here today has been outstanding in the association's long history. With some 1,500 doctors in attendance, it has been one of the largest annual meetings the association has held. A notable list of speakers has addressed the convention sessions. The first use of color television in St. Louis, and the first demonstration of television as a valuable educational tool for medicine, was a feature of interest to both laymen and medical men.

"The association may well be proud of the record of the last century. As the highlights of the profession's advancement described in the *Globe-Democrat's* special convention section last Sunday emphasized, the association has played a vital part in the development of the modern medical services and facilities which Missouri now enjoys. It has been almost a revolutionary century, in which medicine has given the world such disease killers as sulpha and penicillin, dramatic discoveries in surgery and great advances in the field of preventive medicine. The growth of St. Louis as one of the leading medical centers of the nation is a part of this story.

"As the association begins a new century, it is in a strong position to meet the threat of socialized medicine. It is working to solve the related problems of the new era, which include expansion of medical facilities and personnel in rural areas, leadership in voluntary health insurance plans, and better educational facilities to train doctors, nurses, dentists and public health men. The foundation on which these programs may be built has been laid at the sessions in St. Louis, which is proud to be host to this centennial convention."

HOSPITALS AND MEDICAL CARE

An attempt is being made to induce Blue Cross plans to issue a so-called comprehensive hospitalization plan which would include in addition to the usual hospital benefits various professional services, particularly those of the pathologist, radiologist and anestheologist. The House of Delegates of the Missouri State Medical Association has gone on record as opposing such a plan, and it is appropriate to point out that such services are provided to a considerable degree by the various voluntary prepaid medical plans. The discussion, however, emphasized the need for a clearer understanding of the functions of hospitals and physicians. It should be obvious that the function of the hospital is the provision of housing facilities, food and such measures as aid to the comfort and well-being of the person who is, in a sense, the guest of the hospital. It would seem equally obvious that those procedures which need the active participation or supervision of a physician cannot be considered the rightful function of the hospital. The underlying philosophy inherent in this concept cannot be invalidated by anything which may be done by hospital or physician.

There seems no reason to feel that because the hospital provides physical equipment and office space for the use of physicians that the service then rendered by the physicians become a part of hospital services.

The medical profession has hesitated too long in facing the real danger which is gradually but surely developing. It cannot be denied that once the service of the physicians now under discussion are firmly established as hospital functions, there is nothing to prevent other professional services from being included. Indeed in some localities such services already are included.

Aside from the moral and philosophical aspects of this problem there is the legal question as to whether or not hospitals can employ physicians who then render medical care in the name of the hospital. Such an arrangement must surely be regarded as a corporation practicing medicine.

It is time then that the medical profession face this problem firmly and develop such measures as are necessary to combat the creeping envelopment which is now going on.

Let the separation of medical and hospital service be definitely established and firmly maintained. There is no occasion to yield to the pressure of

various groups whose knowledge of the problem is perfunctory and whose attitude is that of indifference so long as the services they seek are attained.

A. M. A. DUES

The following editorial entitled, "Our A. M. A. Dues," written by Vincent T. Williams, M.D., Kansas City, editor of the *Jackson County Medical Society Weekly Bulletin*, appears in the March 18 issue of that publication. It is reprinted for the benefit of members who may not have had opportunity to read it.

"Considerable confusion has arisen in the minds of many members concerning the financial obligations to our various medical organizations. Particularly is this true of our 1950 A. M. A. dues.

"Previously, if a member kept up his county medical society membership, he was automatically a member of the American Medical Association. Henceforth, he must remain in good standing with the county society and also pay the annual A. M. A. dues of $25.00. This last requirement is mandatory of all who are active in the practice of medicine unless exempted because of special situations.

"Those who may be exempted are: 'retired members, members physically disabled, interns and those upon whom the payment of such dues would constitute a financial hardship.'

"Forfeiture of membership in the A. M. A. (for failure to pay dues) will have no effect on membership in the component or constituent medical societies unless these bodies so amend their respective by-laws and constitutions. It is possible, therefore, to be a member of a component or constituent society and not a member of the A. M. A.

"Eligibility for fellowship in the A. M. A. is the same; the dues remain at $12.00. Thus, for the year 1950, the total membership and fellowship dues in the A. M. A. will be $37.00.

"This is a particularly critical period for our parent organization. We believe it has been carrying on a telling fight against those who would subject us to the regimentation of collectivist medicine. Some find fault with the various procedures which have been attempted in the propaganda battle, but unquestionably, the results have been favorable.

"In the main, the criticisms heard concerning this educational program have been petty. No one could master-mind such an extensive venture and completely satisfy several hundred thousand or several million people. The effectiveness of any one particular phase, method or technique which has been utilized is of small consequence. It is the sum-total impact which is most important.

"If we accomplish only two objectives the plan will merit the support of every practitioner of medicine. First, if we can but get it across to the American people that we are fighting a principle which threatens to give them a raw deal in the way of medical care, and second, if we can but impress upon the public how much better off they will be under wide-spread voluntary plans, we will have achieved our real purpose.

"It is for each physician to search his own mind and conscience in this matter and to act accordingly. This is no time for dilly-dallying. Each must consult his own inner being and stand up to be counted.

"We beg each member to consult his own conscience, we hope your vote favors the A. M. A. policy."

NEWS NOTES

Ellsworth H. Trowbridge, Jr., M.D., Kansas City, spoke before the Kansas City Business Men's Assurance Association March 9 on "Psychosomatic Disorders."

Merit awards for service to the hospital were presented to Walter C. G. Kirchner, M.D., St. Louis, and the late Joseph Grindon, M.D., St. Louis, by the City Hospital Alumni Association at a meeting March 29 in St. Louis.

Herbert J. Rinkel, M.D., Kansas City, has been made an honorary member of the Argentine Association of Allergy.

Max Goldman, M.D., Kansas City, has been elected a vice chairman of the Club Presidents Round Table in Kansas City.

S. A. Lanzafame, M.D., Farmington, spoke before the St. Francois County Council of Parents and Teachers on March 8, at Farmington, and explained the work being done by the county health unit.

Harry Statland, M.D., Kansas City, spoke before the American Goiter Association at Houston, Texas, on March 10. His subject was "The Relationship of Thyroid Diseases to Adrenal Cortical Function."

LeRoy R. Sante, M.D., St. Louis, was elected, president of the St. Louis City Hospital Alumni Association at a meeting on March 29. Rueben M. Smith, M.D., St. Louis, was elected vice president.

Hugh L. Dwyer, M.D., Kansas City, spoke on "Work and Worry—What Price Health" before members of the Kansas City South Central Business Association on March 28.

The Hyman Spector lectures were initiated by St. Louis University on April 12. J. Arthur Myers, M.D., Minneapolis, spoke on "Immunity and Tuberculosis—Thirty Years of Observation."



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Organization and Economics

MUSINGS OF THE FIELD SECRETARY

The second annual state-wide Health Conference sponsored by the Missouri Health Council will be staged in the ballroom of the Governor Hotel, Jefferson City, on Thursday, May 11, from 10:30 a. m. to 3:30 p. m. The theme of this Conference will be "Community Responsibility for Better Health." The underlying idea is to vividly bring out the desirability of local communities assuming more of the obligations of solving their own health problems. Add to this a presentation of actual examples over the state where this idea has, or is, being carried out, and how—and one has a fundamental issue at hand. The tentative program for this state-wide meeting is published elsewhere in this issue of The JOURNAL.

Last year more than 100 lay and professional people attended the first Conference and this year more than double that number is expected. There is no registration fee and the public at large is invited.

It is anticipated that the fifty County Health Councils in the state, along with the State Council member organizations, will be well represented. Physicians, dentists, nurses and other medical personnel are especially requested to attend this meeting. After all, does it not require a lot of teamwork to achieve the idea back of the Conference as previously stated? Could you possibly be there?

In retrospect, it should be remembered that if it were not for the leadership and driving force of the Committee on Rural Medical Service of the Association, it is quite doubtful if there would be a Missouri Health Council today.

Cooperation and better understanding between individuals and organizations, from efforts to solve common health problems, can and does become reality—as observe, the Missouri Health Council.

DEATHS

Koppenbrink, Walter E., Sr., M.D., Higginsville, a graduate of Washington University School of Medicine, 1913; Fellow of the American Medical Association; former president and member of the Lafayette County Medical Society; aged 60; died March 1.

Cantwell, James L., M.D., Bucklin, a graduate of the St. Louis College of Physicians and Surgeons, 1889; honor member of the Linn County Medical Society; aged 89; died March 9.

Thomson, David A., M.D., St. Louis, a graduate of the St. Louis College of Physicians and Surgeons, 1903; Fellow of the American Medical Association; member of the St. Louis Medical Society; aged 75; died March 17.

Grindon, Joseph, Sr., M.D., St. Louis, a graduate of Washington University School of Medicine, 1879; Fellow of the American Medical Association; honor member of the St. Louis Medical Society; aged 91; died April 1.

Bartlett, Willard, Sr., M.D., St. Louis, a graduate of the Marion-Sims College of Medicine, St. Louis, 1895; Fellow of the American Medical Association; honor member of the St. Louis Medical Society; aged 82; died April 4.

MISSOURI HEALTH COUNCIL

The second annual state-wide Health Conference sponsored by the Missouri Health Council will be held in the Ballroom, Governor Hotel, Jefferson City, on Thursday, May 11. There is no registration fee.

Morning Session, 10:30 a. m.

Address of Welcome, Honorable Forrest Smith, Governor of Missouri.

Good Health is Everybody's Business, Ray McIntyre, Chairman, Missouri Health Council.

Public Health and the Practicing Physician, Buford G. Hamilton, M.D., Director, Missouri Division of Health.

Community Responsibility for Better Health, Haven Emerson, M.D., New York, Treasurer, National Health Council; Chairman, Committee on Local Health Units, National Public Health Association.

Recess for lunch.

Afternoon Session, 1:30 p. m.

Panel Discussion: Local Missouri Health Councils: Why, When, Where, Who, What—and How.

Moderator: Mr. Donald Pratt, Executive Secretary, Missouri Tuberculosis Association.

Discussants: Mr. Harry Riehl, President, Washington County Farm Bureau.

Mrs. Jess Bowman, Atchison County Farm Bureau.

Rev. Floyd V. Brower, Pemiscot County Health Council.

James Fred Hoge, D.D.S., Butler County Health Unit.

Mrs. Clara Crider, Pulaski County Health Council.

Haven Emerson, M.D., National Health Council.

NEW MEMBERS

Aubin, Francis W., Branson, Mo., Ozarks Medical Society.

Baber, John C., Jr., St. Louis, St. Louis M. S.

Ballard, V. Bryce, Kansas City, Jackson County.

Beatty, Arch J., Kansas City, Jackson County.

Buckner, Robert C., Kansas City, Jackson County.

Bunten, J. C., Branson, Mo., Ozarks Medical Society.

Burns, Beryl I., Kansas City, Jackson County.

Burst, Donald O., St. Louis, St. Louis M. S.

Domke, Herbert R., Clayton, St. Louis County.

Eberle, John P., St. Louis, St. Louis Medical Society.

Edmonson, Paul J., Centralia, Boone County.

Edwards, Theodore F., N. Kansas City, Clay County.

Ellis, Sam T., St. Louis, St. Louis Medical Society.

Finkel, Barney, St. Louis, St. Louis County.

Fulks, Richard B., California, Moniteau County.

Gaines, John F., St. Louis, St. Louis Medical Society.

Gay, Leonard A., Columbia, Boone County.

Gunn, Richard W., Kansas City, Jackson County.

Haddock, James N., Columbia, Boone County.

Hunter, Fred M., Bowling Green, Pike County.

Ishii, Albert H., Clayton, St. Louis County.

Kauffman, Ruth, Versailles, Morgan County.

Kirschman, Robert E., Joplin, Jasper County.

Lam, Robert Lee, St. Louis, St. Louis Medical Society.

Lamke, Charles, Columbia, Boone County.

Lee, Leonard R., Bethany, Harrison County.

Leeper, Claude K., Columbia, Boone County.

Lewis, Ray B., Boonville, Cooper County.

Lockard, Vernon M., Kansas City, Jackson County.
McCoy, Fred J., Kansas City, Jackson County.
McCullough, C. C., Kansas City, Jackson County.
McGlew, James A., Oakville, St. Louis County.
Maher, Robert W., Springfield, Greene County.
Mayer, Robert A., St. Louis, St. Louis County.
Meier, F. X., Jefferson City, Cole County.
Molden, Charles A., Webster Groves, St. Louis County.
Murphy, John W., Jr., St. Louis, St. Louis M. S.
Newman, Percy, St. Louis, St. Louis M. S.
Padfield, Earl G., Kansas City, Jackson County.
Parish, Isaac N., Drexel, Cass County.
Peters, Richard M., St. Louis, St. Louis M. S.
Polley, Robert F. L., St. Louis, St. Louis M. S.
Richardson, R. G., Jefferson City, Cole County.
Robins, Eli, St. Louis, St. Louis M. S.
Rubbra, Jean O., Kansas City, Jackson County.
Rudi, Herbert J., St. Louis, St. Louis M. S.
Sandy, Charles, Pilot Grove, Cooper County.
Seibert, Joseph E., St. Louis, St. Louis M. S.
Shelden, Russell D., Kansas City, Jackson County.
Sherard, Julius C., St. Louis, St. Louis M. S.
Sipes, Frank M., Butler, Bates County.
Smith, Gladys, Columbia, Boone County.
Snapp, Landon B., Caruthersville, Pemiscot County.
Snead, William H., Independence, Jackson County.
Stephenson, Hugh E., Columbia, St. Louis M. S.
Vaughn, A. N., St. Louis, St. Louis M. S.
Vinson, T. C., St. Louis, St. Louis M. S.
Wolff, Paul C., Cape Girardeau; Cape Girardeau Co.
Wood, Gary B., St. Louis, St. Louis M. S.
Zimmerman, Joseph A., Kennett, Dunklin County.

SOCIETY PROCEEDINGS

FIRST COUNCILOR DISTRICT

DONALD M. DOWELL, CHILLICOTHE, COUNCILOR

Twenty-two physicians from ten North Central counties met to eat and participate in a subsequent medical program at Fraley's Drive-in at Chillicothe on March 16.

A film on "Nutrition" was shown.

F. A. Carmichael, Jr., M.D., Kansas City, followed the film with a discussion on "The Management of Head Injuries."

W. A. Broyles, M.D., Secretary
Harrison County Medical Society

TENTH COUNCILOR DISTRICT

FRANK W. HALL, CAPE GIRARDEAU, COUNCILOR

Mineral Area County Medical Society

The regular monthly meeting of the Mineral Area County Medical Society was held at 8:00 p.m. on March 30, at State Hospital No. 4, Farmington.

Sim Beam, M.D., St. Louis, spoke on "Influenza: Its Diagnosis, Treatment and Complications." He gave an interesting and informative lecture which was followed by a general round-table discussion with members of the Society.

The following members were present: Drs. Ben M. Bull, Ironton; M. T. Haw, Jr., Van W. Taylor and H. H. Roebber, Bonne Terre; F. R. Crouch, S. A. Lanzafame and E. F. Hoctor, Farmington; Dailey Appleberry, Rivermines; S. C. Slaughter, Fredericktown; J. L. Foster, Desloge; C. H. Appleberry and Paul L. Jones, Flat River.

The Woman's Auxiliary met at the hospital at the same time.

Paul L. Jones, M.D., Secretary

COUNTY SOCIETY HONOR ROLL — 1950

(Societies which have paid dues for all members and date placed on Honor Roll)

Benton County Medical Society—December 3, 1949

Camden County Medical Society—December 5, 1949

Harrison County Medical Society—December 7, 1949

Moniteau County Medical Society—December 9, 1949

Ste. Genevieve County Medical Society—December 15, 1949

Miller County Medical Society—December 16, 1949

Callaway County Medical Society—December 17, 1949

Webster County Medical Society—December 19, 1949

Perry County Medical Society—December 21, 1949

Dallas, Hickory, Polk Counties Medical Society —December 29, 1949

Audrain County Medical Society—December 30, 1949

Lewis, Clark, Scotland Counties Medical Society January 4, 1950

Howard County Medical Society—January 10, 1950

Pike County Medical Society—January 10, 1950

Linn County Medical Society—January 15, 1950

Shelby County Medical Society—January 18, 1950

Pettis County Medical Society—January 18, 1950

Henry County Medical Society—January 26, 1950

Carter-Shannon County Medical Society—January 27, 1950

Carroll County Medical Society—February 4, 1950

Morgan County Medical Society—February 8, 1950

Mineral Area County Medical Society—February 8, 1950

Laclede County Medical Society—February 9, 1950

Bates County Medical Society—February 13, 1950

Cape Girardeau County Medical Society—February 25, 1950

Vernon-Cedar County Medical Society—February 27, 1950

Johnson County Medical Society—March 3, 1950

Franklin County Medical Society—March 13, 1950

Lincoln County Medical Society—March 10, 1950

Cole County Medical Society—March 17, 1950

Marion-Ralls County Medical Society—March 24, 1950

An Observation on the Accuracy of Digitalis Doses

Withering made this penetrating observation in his classic monograph on digitalis: "The more I saw of the great powers of this plant, the more it seemed necessary to bring the doses of it to the greatest possible accuracy."[1]

To achieve the greatest accuracy in dosage and at the same time to preserve the full activity of the leaf, the total cardioactive principles must be isolated from the plant in pure crystalline form so that doses can be based on the actual weight of the active constituents. This is, in fact, the method by which Digilanid® is made.

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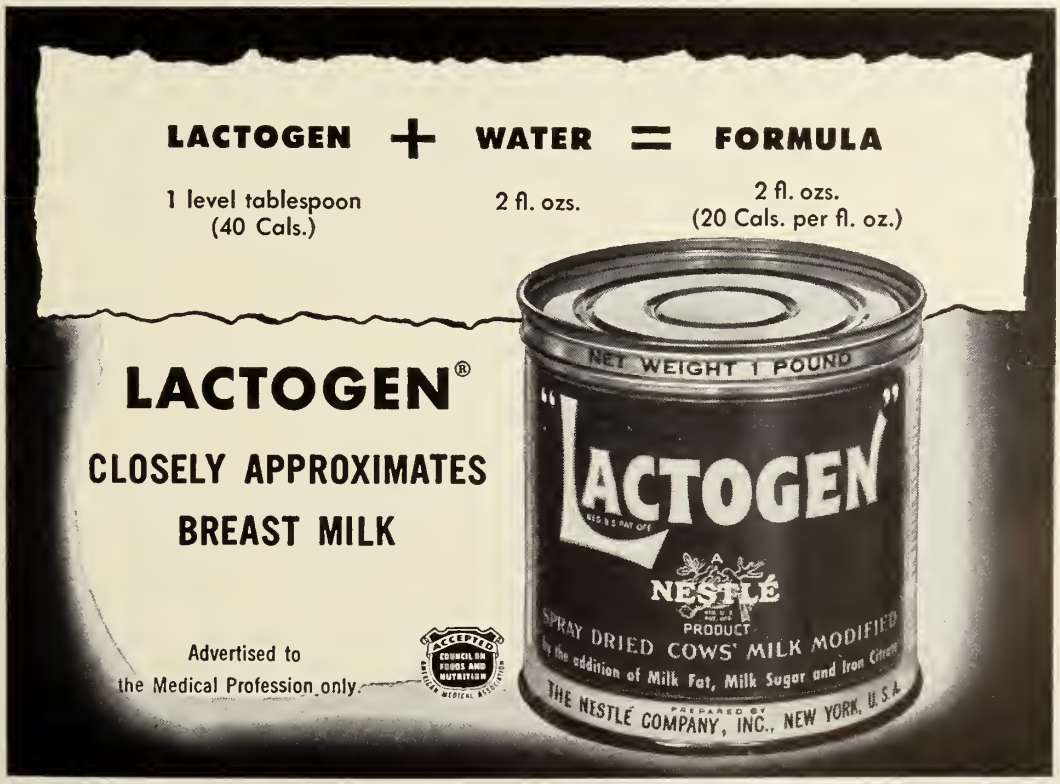
Average dose for initiating treatment: 2 to 4 tablets of Digilanid daily until the desired therapeutic level is reached.
Average maintenance dose: 1 tablet daily.
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1. *Withering, W.:* An account of the Foxglove, London, 1785.
2. *Rimmerman, A. B.:* Digilanid and the Therapy of Congestive Heart Disease, Am. J. M. Sc. *209:* 33-41 (Jan.) 1945.

Literature giving further details about Digilanid and Physician's Trial Supply are available on request.

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Student Loan Fund

The rules and regulations of the Student Loan Fund of the Woman's Auxiliary to the Missouri State Medical Association follow:

I. Title.

1. This fund shall be known as the Student Loan Fund of the Woman's Auxiliary to the Missouri State Medical Association.

II. Purpose.

1. This fund is to be used to further the medical education of Missouri boys and girls.

III. Rules and Regulations.

1. This money shall be obtained through the efforts of the county and city Auxiliaries. The goal set for each Auxiliary is the minimum amount of 50 cents per member annually. This is to be added to the $1,000.00 now in the loan fund.

2. The total amount of money to be loaned in any one year shall be $600.00 except in case there is no worthy applicant for one year or more, then the accumulated funds thus accruing may be loaned in any year.

3. The money shall be loaned at a yearly rate of 2 per cent interest, the notes to become interest bearing three years from date of graduation.

4. Upon graduation all notes shall be consolidated and signed by recipient of the loan.

5. The state chairman of the student loan fund committee shall send a yearly statement of indebtedness to recipient by March 1.

6. If the time should come when the need for student loan fund no longer exists, then it may be diverted to other philanthropic use by a two thirds majority vote of the Executive Board.

IV. Eligibility of Applicants.

1. The applicant must be a Missouri boy or girl.

2. The applicant must be in the junior or senior year of an accredited medical school.

3. The applicant must be of high moral character.

4. The applicant must have an acceptable scholastic rating.

5. The applicant must fill out an application blank, accompanied by the names and addresses of three references.

6. The applicant should indicate a willingness to practice medicine in rural Missouri.

V. Administrative Body.

1. This fund shall be administered by a committee of five members three of whom shall be elected by the Executive Board of the Auxiliary with varying terms of one, two and three years. After the order is established, one shall be elected annually to take the place of the retiring member. Two members shall be from the Missouri State Medical Association, appointed by the President of that organization. The President and President-elect of the Auxiliary shall be ex-officio members of the committee.

2. The committee shall be vested with full power to approve, make or deny loans.

3. The chairman of the student loan fund committee shall maintain contact with all recipients of loans.

4. All applicants are to be notified that in the event of their leaving school before graduation or if their conduct or grades are unsatisfactory, the money becomes due and payable.

BOOK REVIEWS

MEDICAL ETYMOLOGY, The History and Derivation of Medical Terms for Students of Medicine, Dentistry and Nursing, by O. H. Pepper, M.D., Professor of Medicine, University of Pennsylvania. W. B. Saunders Company. Philadelphia-London. 1949. Price $5.50.

Words are the tools of anyone who writes. They are the visualized conversation or instruction of those who are conveying to us their thoughts or factual information. Words can have many meanings and often this provides confusion because abstract words mean different things to different people. There is little doubt but that a knowledge of the origin of a "or" or of its derivation could provide a better understanding of its usage. Every student of medicine, dentistry and nursing is

amazed and often confounded with the array of strange words with which he is confronted, especially in the premedical years. That there is a reason why each word has become a part of the printed fabric of medicine is the task that Dr. Pepper has attempted and in most entertaining manner.

This could never be a "must" book but it surely will be interesting to anyone who reads it and it will reward anyone who seeks to find the meaning, career and probable destiny of the words that the profession mouths constantly. The book is not a dictionary nor a Thesaurus. It is arranged with alphabetical listings under "Preclinical Subjects," "Clinical Subjects," "Specialties," and "Dentistry." Many of the meanings are fascinating, original and carry a humorous punch. For instance, "Dyspepsia: dys-bad, pepsis-digestion, and ia-condition. An old term, better forgotten. In the days before discovery of the x-ray this was the diagnosis in most cases of duodenal ulcer." And the word "duodenum" is so meaningful because the Germans had called this portion of the bowel the Zwoelffingerdarm, meaning the twelve finger intestine. In their earlier dissections and autopsies the Germans easily measured by fingerbreadths as there was as yet no scientifically adopted metric system. The Basle nomenclature searched for a word for this long twelve-fingered railroad train of letters and happily adopted duodenum from the Latin meaning two and ten which, if I am not mistaken, still mounts to twelve.

The last word in the book which is "xerostomia" carries the final humorous punch line. It is derived from the Greek Xeros meaning dry and stoma meaning mouth. As Dr. Pepper continues, "This results from several causes, including the reading of this book to the end. This latter type can easily be cured." There are too few pages upon eponyms and onomatopoetic words and Pepper crusades mildly against the perpetuation of the words that carry the names of even worthy discoverers as qualifying or definitive parts of a disease name or anatomic part. There are much better reasons for using "echoic" words such as belch, hiccup and other brief words that attempt to translate sound into a word. I could keep on telling of the fascination and satisfaction of this book. Maybe you better buy the book and you can taste it for yourself. E. H. S.

Diseases of the Heart by Charles K. Friedberg, M.D., Associate Physician, Mount Sinai Hospital, New York; Lecturer in Medicine, Columbia University. W. B. Saunders Company, Philadelphia and London. 1949. Price $11.50.

This is an entirely new book which makes a fine bid for recognition as a classical work in cardiac literature. It is encyclopedic in scope yet, for the most part, is concise and easily readable. As a reference work, it covers the entire field of cardiology, and includes material published in the journals well into 1949. It contains not only recent material but also many pertinent historic references. The lengthy bibliographies at the end of each chapter reveal the exhaustive research that went into the writing of this work.

The author develops his discussions of cardiac disorders from the standpoint of pathologic physiology rather than by didactic methods. He includes discussions of such measurements as cardiac output, blood volume, extracellular volume, peripheral and intracardiac blood oxygen concentrations, intracardiac pressures, body fluid and tissue electrolytes, and renal and pulmonary blood flow. These measurements are presented as practical methods in the present day diagnosis and treatment of cardiac disease.

Subjects which are especially important are presented in great detail. There are ten chapters on circulatory failures, eight on diseases of the coronary circulation and three on rheumatic fever and rheumatic heart disease. Recent work on congenital heart disease is discussed fully.

Interesting and informative sections are included on cardiac disorders in relation to endocrine, metabolic and nutritional disease. There are chapters on traumatic heart disease, cardiac tumors, functional cardiac problems, pregnancy and heart disease, surgery and the cardiac patient, insurance and medicolegal problems.

One must not, however, give the impression that this is purely a reference work for internists and cardiologists. While some of the discussions of physiology and pathology are lengthy, the author reveals himself as a clinician of great experience by his attention to the many little practical details of cardiac management. In my opinion, Dr. Friedberg's book is at present the best and most up-to-date single volume on the subject. S. E. S.

Oral Anatomy by Harry Sicher, M.D., Professor of Anatomy and Histology, Loyola University School of Dentistry, Chicago College of Dental Surgery. With 310 Text Illustrations, including 24 in color. C. V. Mosby Company. St. Louis. 1949. Price $15.00.

This compact book is divided into two parts, the first part dealing with descriptive anatomy, and the second part with regional and applied anatomy. Realizing that it was written primarily as a textbook for dental students, and that the balance of emphasis on anatomic problems leans toward the dental side, it still is an excellent review and description of head and neck anatomy as it describes tissues well beyond the confines of its title. Particularly enlightening is the chapter on temporomandibular articulation, as this joint is one for which the average physician anxiously seeks guidance. The chapter on anatomy of local anesthesia and on hemorrhages and ligation of arteries is particularly enlightening to the surgeon dealing with the head and neck.

Dr. Sicher has added a valuable adjunct to the anatomy library of the well posted physician as this is an excellent book and deserves creditable attention. W. P. B.

Medicine Throughout Antiquity by Benjamin Lee Gordon, M.D., Member American Association of the History of Medicine and American Academy of Ophthalmology and Otolaryngology. Certified by American Board of Ophthalmology. Attending Ophthalmologist to Shore Memorial Hospital, Sommers Point, New Jersey, and to Atlantic County Hospital for Tuberculous Diseases and Atlantic County Hospital for Mental Diseases, Northfield, N. J. Authorized Medical Examiner for Civil Aeronautics Administration, Department of Commerce, Washington, D. C. Author of "The Romance of Medicine." Foreword by Dr. Max Neuburger. 157 Illustrations. F. A. Davis Company, Publishers. Philadelphia. 1949. Price $6.00.

This is a curiously written book. In the fourth chapter, "Prehistoric Medicine," the reviewer failed to find a single allusion to this topic. The reader first comes to ancient medicine on the 200th page, and a little on Peruvian trepanning, which was often done for superstitious reasons, such as, to permit the escape of a demon.

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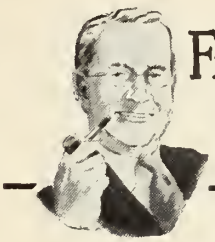
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Handy Peterson and Easy Roberts got in an argument the other day over at Fred's Garage talking about the best spot to fish up at Green Lake.

"Opposite the old sawmill is the best spot," says Handy. But Easy "pooh-pooh's" him. "I've seen the biggest fish caught off Cedar Point," says Easy. "I've been catching them there for years."

Then Fred goes into his office and brings out the biggest mounted trout you ever saw. "Bet that was caught at the sawmill," comments Handy. "Cedar Point," says Easy. "Well," says Fred, "you're both *wrong. I caught this right out in the middle!"*

From where I sit, there are always two (or more) sides to every story. Let's live and let live in the true American tradition of toleration. Your opinion is worth a lot, but so is the other fellow's—whether it's on politics, the best fishing spots, or whether he likes a temperate glass of beer and you like buttermilk.

Joe Marsh

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different places needs an introduction describing the history, culture, science, religion, social relation and morals, just as one could not write about Moscow without speaking of Russia. Such introductory matter Dr. Gordon furnishes in great abundance and at times at the expense of his unusual theme.

The antiquity extends to and includes Galen, but toward the end, sixty-eight pages are devoted to the Talmud, based on the earlier Mishna. The Talmud is better known to modern Jews than is the Old Testament.

Martimer Adler said that a book worth reading once is worth reading three times. I shall not read this three times. J. G., SR.

ATLAS OF OBSTETRIC TECHNIC by Paul Titus, M.D., Obstetrician-Gynecologist to the St. Margaret Memorial Hospital, Pittsburgh; Secretary, American Board of Obstetrics and Gynecology. Illustrations by E. M. Shackelford, Formerly Medical Illustrator, John C. Oliver Memorial Research Foundation, St. Margaret Memorial Hospital, Pittsburgh. Second Edition. C. V. Mosby Company. St. Louis. 1949. $7.50.

This volume is a collection of clear and accurate drawings accompanied by a terse and concise text. The subjects covered include almost every procedure one may be called upon to perform with the hands for the pregnant, parturient or puerperal woman, plus a section on sterility. There are blank pages for personal notes at the end of each section.

The book would seem of value to anyone doing obstetrics, but particularly to medical students and those specializing in obstetrics and gynecology. The student will find the procedures mentioned in the text profusely illustrated and better enables him to understand the technics used. The practicing obstetrician finds enough detail that he is able to compare these procedures with his own and make alterations or additions to his armamentarium as desired. The book does not presume to make the reader an obstetric specialist, but anyone doing general practice can pick up valuable tips from its pages. E. G. H.

OTOLARYNGOLOGY, Fundamental of, A Textbook of Ear, Nose and Throat Diseases, by Lawrence R. Boies, M.D., Clinical Professor of Otolaryngology, Director of Division of Otolaryngology, University of Minnesota Medical School, and Associates: Charles E. Connor, M.D., Anderson C. Hilding, M.D., Jerome A. Hilger, M.D., John J. Hochfilzer, M.D., Conrad J. Holmberg, M.D., Kenneth A. Phelps, M.D., Robert E. Priest, M.D., and George M. Tangen, M.D. W. B. Saunders Company. Philadelphia and London. 1949. Price $6.50.

This is an excellently written book for the medical student, general practitioner, beginner in otolaryngology and even for the experienced otolaryngologist who wishes to make a quick up-to-date review.

The book is divided into three parts: the ear, the nose and the throat. Each part has appropriate chapters on anatomy, examination and diseases; also, there are chapters with titles for important symptoms and their common causes.

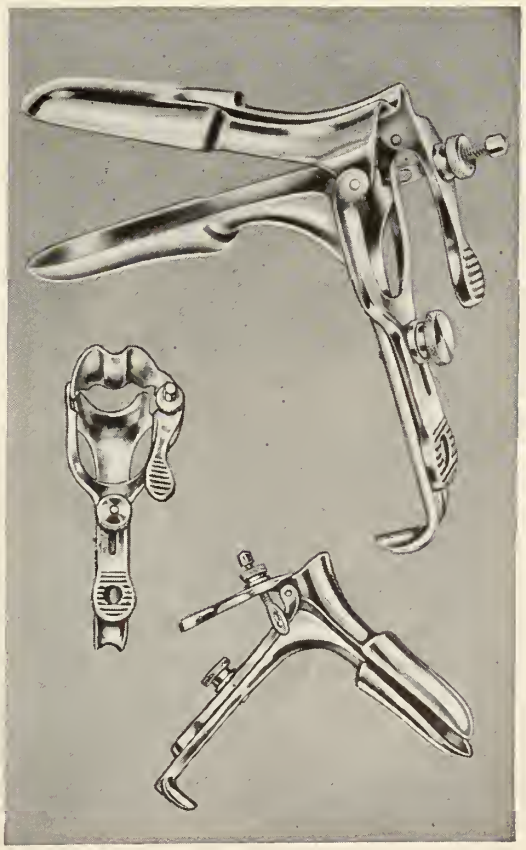
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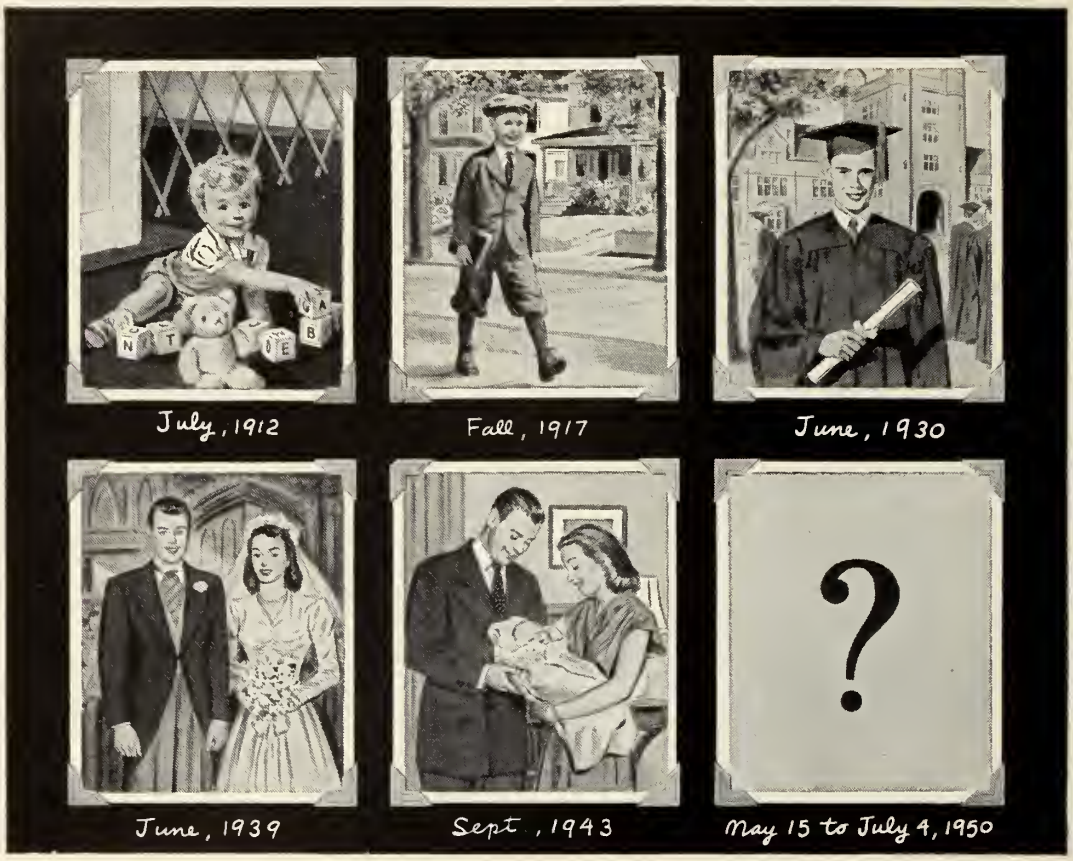
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Address all communications to The Journal of the Missouri State Medical Association, 623 Missouri Theater Building, 634 North Grand Avenue, St. Louis 3. Telephone: Newstead 0404-0405.

Subscription: $3.00 per year; 40 cents per copy.

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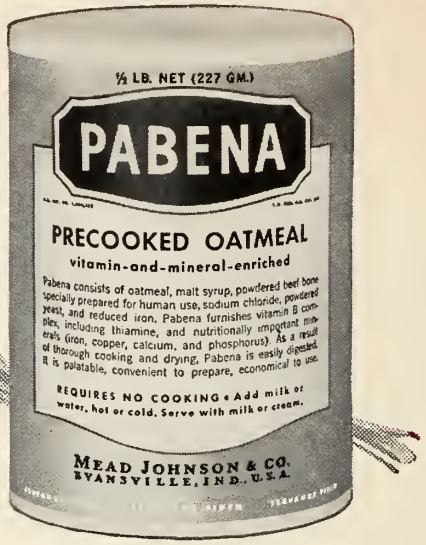
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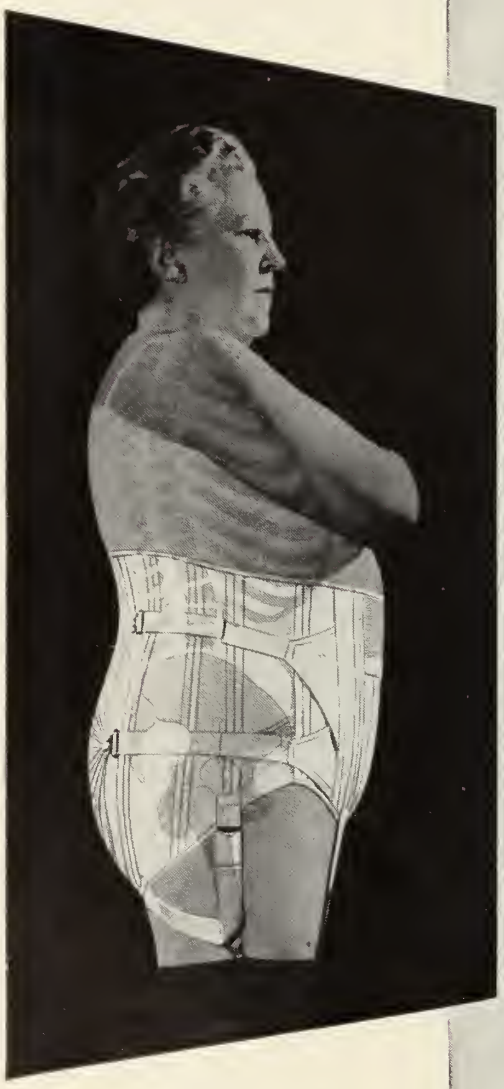


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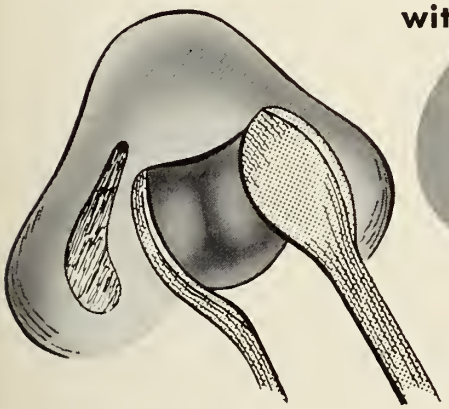
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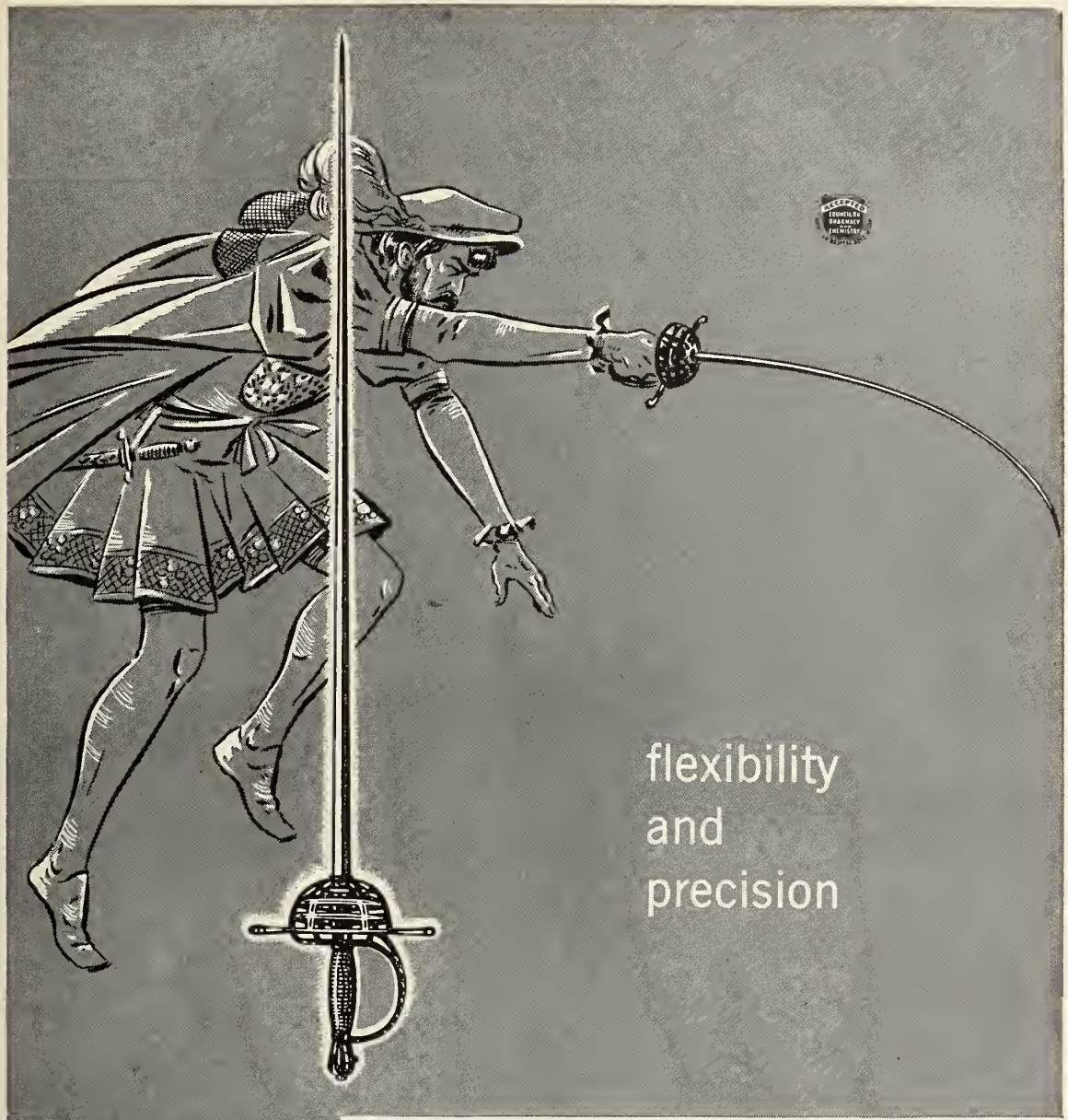
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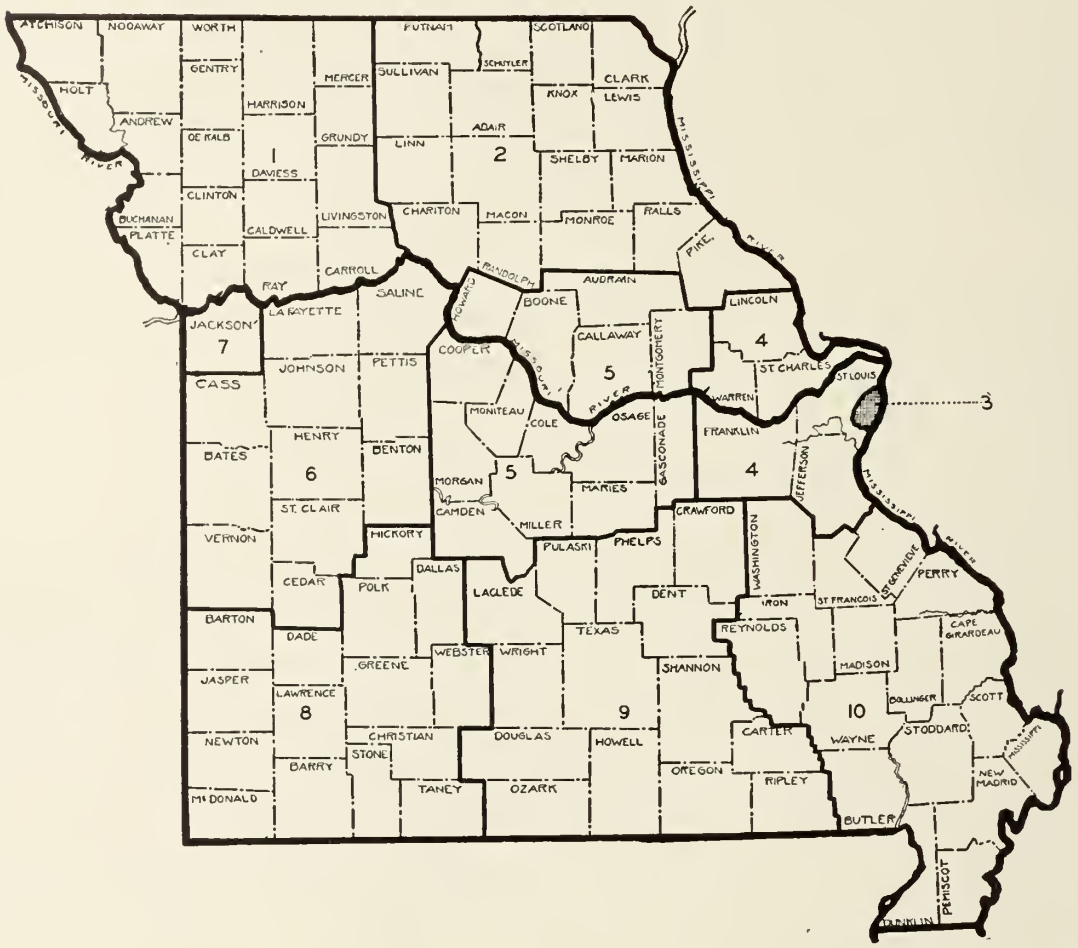
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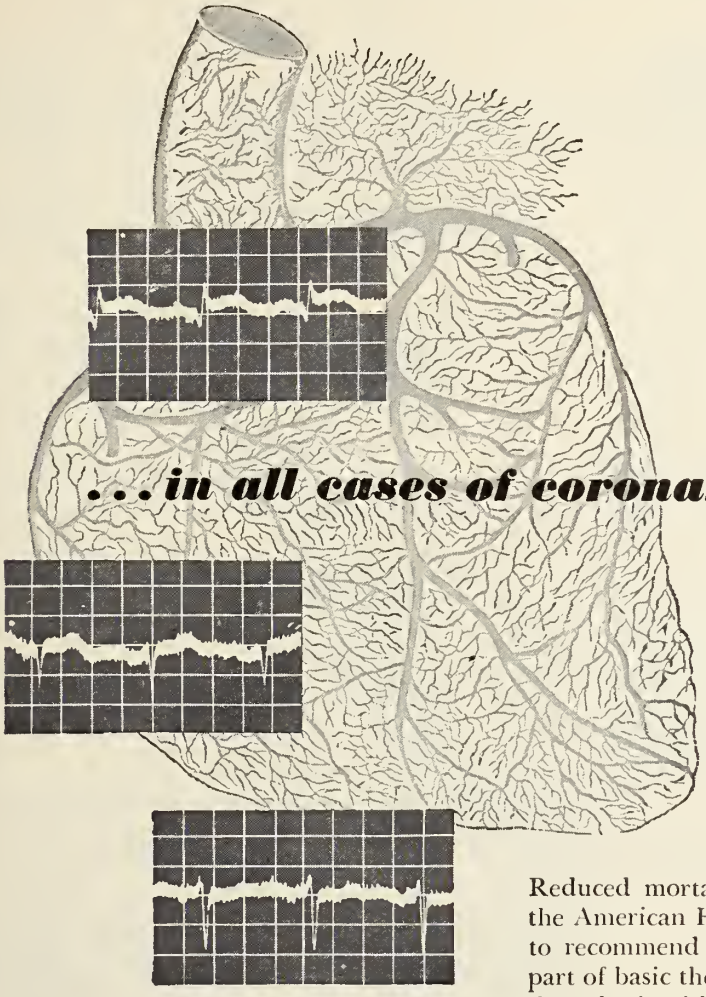
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1. *Wright, et al: Am. Heart J.* 36, 801 *(Dec.)* 1948.

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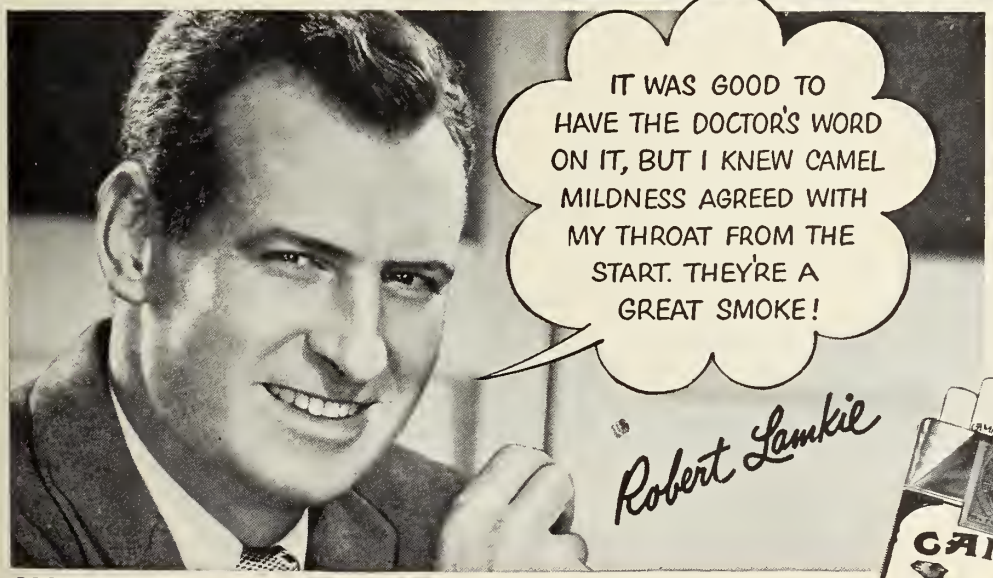
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Volume 47 JUNE, 1950 Number 6

Scientific Articles

THE CLINICAL UROLOGIC SIGNIFICANCE OF FASCIAL PLANES

MELVIN A. CASBERG, M.D.,
ST. LOUIS

THE ART OF medicine is the practical application of the science of medicine and might be compared to a parasite dependent for its growth and progress upon the vital issues inherent in its host, the science of medicine. Thus the art of medicine can never far outreach the advancing boundries of scientific research. Clinicians of worth must ever return to the basic sciences to correlate their findings and thereby improve their diagnostic and therapeutic acumen.

Since the dawn of modern medicine physicians have noted and recorded that pathologic processes in certain anatomic areas have a tendency to follow a rather fixed pattern. Furthermore, they have observed that extravasations, whether these be of blood or visceral contents, and inflammatory reactions may be limited or directed in their spread by anatomic barriers. Surgeons have noted that the relation of an infection to the fascial planes in the neck may determine whether or not the patient will develop a serious condition such as a mediastinitis or a more or less innocuous localized abscess. Abraham Colles[2] in the early part of the 19th century noticed that a localized effusion of urine collected in the perineum following the rupture of the posterior urethra and then he proceeded to demonstrate on the cadaver the extent of the fascia which now bears his name. In 1848 Gurdon Buck, Jr.,[1] in order to correlate the clinical findings evident in a case of urinary extravasation went back to the anatomy laboratory and dissected a fascial layer which has since been called Buck's fascia.

Anatomic dissections, especially those carried out on fixed specimens, must be evaluated with caution for it is quite easy to create artificial cleavage planes. Those familiar with anatomic research are acquainted also with the novice enthusiasts who are able to demonstrate on the cadaver variations in the arrangement of structures which are the product of preconceived ideas and obvious artefacts. In the embalming process tissue structure is changed and therefore utilizing various methods such as pressure injection to determine anatomic channels for the spread of fluids in the laboratory body is open to criticism. It is extremely difficult to reproduce the variety of forces contributing to such a diffusion, whether these be the rhythmic pounding of an arterial hemorrhage, the enzymatic action of a purulent exudate or the astringent tanning properties of an extravasation of urine.

Time and space do not permit a review of the extensive literature on the fascial layers as they relate to the field of urology. Recently several controversial issues have been raised in regard to the correct interpretation of the anatomy of the perineum[3, 4, 5] and these will be touched on only briefly in so far as they clarify related clinical interpretations. Unfortunately, such a variety of descriptions and names have been applied to the anatomic structures under discussion that neither the academic anatomist nor the clinical urologist have been able to grasp the details of all the ramifications of these fasciae.

The clinical significance of fascial layers is dependent on their relation to: (1) their function as directives in the spread of extravasations of urine, blood or inflammatory processes; (2) their role in the support of adjacent anatomic structures; (3) their influence on the spread of neoplasms, and (4) their aid as surgical landmarks.

THE CLINICAL SIGNIFICANCE OF FASCIAL PLANES OF THE PERINEUM AND PELVIS

Primary attention under this heading will be given to urinary extravasations, the etiology of which may be summarized as follows: (1) external violence such as the transmitted force of a blow on the abdomen or the piercing of the bladder or urethra by a fragment of fractured bone; (2) internal violence produced by instrumentation; (3) infection,

Presented at the Graduate Course in Urology, sponsored by the South Central Section of the American Urological Association, St. Louis, January 3, 1950.
Associate Professor of Surgery,
St. Louis University School of Medicine.

and (4) malignant degeneration alone or with infection. Owing to the better control of genitourinary inflammations, especially those involving the urethra, internal violence is receding as an etiologic factor of importance.

1. *Transversalis Fascia*—Urine extravasated from the superior and posterior peritonealized surface of the bladder will spill into the peritoneal cavity

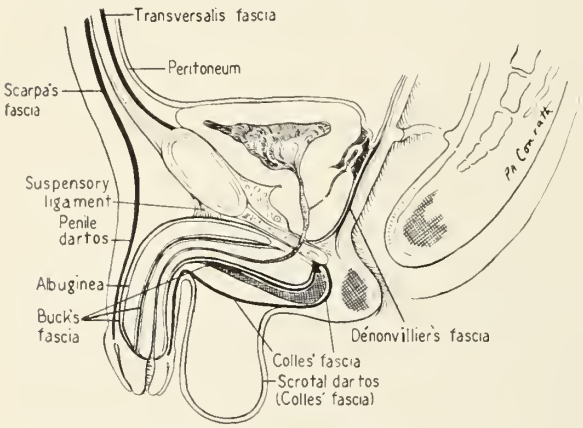


Fig. 1. Diagrammatic representation of the distribution of the perineal fascial layers in sagittal section.

and undergo general dissemination limited only by the peritoneal lining. Should the leak occur anteriorly or around the neck of the bladder superior to the urogenital diaphragm, then the extravasation ordinarily will be limited by the transversalis fascia externally and the peritoneum internally. The urine finds ready passage through the loose areolar extraperitoneal tissue such as is found in the space of Retzius and may extend around the greater portion of the abdominal wall and even through the abdominal inguinal ring within the confines of the thin delicate internal spermatic fascia which is a continuation of the transversalis layer and the heavier external spermatic fascia which is a continuation of the aponeurosis of the external oblique. It is of some practical interest to note that urine entering the scrotum from within the abdomen secondary to a rupture of the extraperitoneal portion of the bladder will lie within the boundaries of the external spermatic fascia whereas an extravasation from the penile urethra extending into the scrotum will lie primarily outside the external spermatic fascia.

2. *Buck's Fascia*—This fascial leaflet invests the penis as a sheath from the corona of the glans to the bulb and forms a continuation of the suspensory ligament superiorly at the base and fuses into the deep transverse perineal fascia inferiorly at the base. The corpus cavernosum urethrae is enclosed and separated from the corpora cavernosa penis by a transverse septal leaflet of Buck's fascia. Dissections have shown that this fascial sheath is best developed in the pendulous portion of the penis and thinner where it covers the urethral bulb. There is no space between the tunica albuginea and Buck's fascia as these two layers are intimately related.

A rupture of the penile urethra releases urine into the corpus cavernosum urethrae which in actuality is a blood pool and a receptacle for the general vascular system. The continued entrance of urine into this area is dependent on its hydrostatic pressure which in turn may be modified by a stricture distal to the point of perforation and by the act of micturation with contractions of the ischio and bulbocavernosus muscles. The toxicity concomittent with urinary extravasation may well be dependent on this auto-infusion of urine as well as the bacterial invasion and resultant bacteremia and septicemia. One who has dissected this fascial sheath can appreciate readily the force necessary to break through its walls and understand the pain experienced by the unfortunate patient who develops an abscess deep to Buck's fascia. Such a process if limited by the sheath surrounding the corpus spongiosum urethrae will produce a swelling along the ventral surface of the penis. Should the transverse septal leaflet separating the corpus cavernosum urethrae from the corpora cavernosa penis be broken through by an inflammatory process, then the entire penile shaft will be more or less symmetrically enlarged.

3. *Colles' Fascia*—This fascial layer has recently

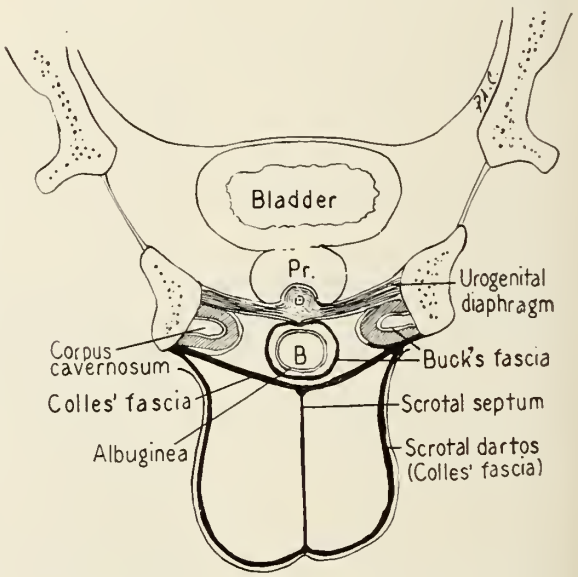


Fig. 2. Diagrammatic representation of the distribution of the perineal fascial layers in coronal section.

been subjected to investigation by Tobin[7] and Uhlenhuth.[8] It fuses with the fascia along the posterior surface of the urogenital diaphragm and also attaches along the limbs of the pubic arch from whence it continues anteriorly and inferiorly as the scrotal dartos which in turn continues anteriorly ensheathing the penis as the penile dartos. Scarpa's fascia which is a distinct superficial fascial leaflet of the anterior and inferior abdominal wall fuses rather firmly with the deep fascia in the

vicinity of the inguinal ligaments but is continuous anterior to the pubis with the penile dartos (Colles, fascia). Uhlenhuth[6] describes a layer of Colles' fascia as extending across the roof of the scrotal cavity thus forming a superficial urogenital pouch. This leaflet fuses with the scrotal dartos at the base of the penis to continue as the penile dartos. The scrotal septum extending from the main layer of Colles' fascia to the scrotal dartos divides the scrotal cavity in two.

When the extravasion or inflammatory process breaks through Buck's fascia it may follow one or more of three directions. One route will result in a spread around the penile shaft between the dartos layer and Buck's fascia, which space is continuous at the base of the penis over the anterior surface of the pubis with that lying between Scarpa's fascia and the aponeurosis of the external oblique. It is this rather classical mode of spread over the anterior abdomen that has received considerable attention from clinician and anatomist alike. The second possibility in the event of a rupture through Buck's fascia is the accumulation of the extravasate in the superficial urogenital pouch. This accumulation may then rupture through the main layer of Colles' fascia, which may have slit-like perforations, into the scrotal cavity where it will lie between the scrotal dartos and the external spermatic fascia. A third and less common direction which may be taken by an extravasate after breaking through Buck's fascia in the posterior aspect where it is closely attached to Colles' fascia is into the perineum and, rarely from there on into the ischio rectal and perianal areas.

4. *Denonvillier's Fascia*—Lying between the rectum and the urogenital system is a fascial plane derived from the extraperitoneal tissues and consisting of two layers one more intimately related to the rectum and the other to the seminal vesicles and the prostate gland. These layers form a rather resistant barrier to the spread of inflammation. Their importance as a barrier to the spread of cancer is debatable. As a surgical landmark for the urologist who removes the prostate or the proctologist who removes the rectum this fascial septum is of value in that it affords an excellent cleavage plane. Furthermore, Denonvillier's fascia is a supporting factor in its relationship to the prostate and rectum.

THE CLINICAL SIGNIFICANCE OF THE FASCIAL PLANES OF THE RENAL AREA

In spite of a variety of names describing similar fascial strata within the abdomen and pelvis it must be understood that these layers are for the most part continuous one with the other. For example the transversalis fascia which classically is described as lying between the peritoneum and the inner surface of the transversus abdominis muscle is continuous with the fascia lining the iliac fossae, the pelvic diaphragm, the internal spermatic fascia, the femoral sheath and other similar layers of the abdominal wall.

Between the peritoneum and the musculature bounding the abdominal cavity are found two fascial layers, namely, the retroperitoneal tissue and the transversalis fascia.

1. *Retroperitoneal Tissue*—This layer gives rise to the anterior and posterior renal fasciae and the perirenal fat. These two fascial planes fuse laterally and superiorly but are open inferiorly around the ureters and medially across the bodies of the vertebrae, enclosing the great vessels. The relationship of the renal fascia and enclosed kidneys to the vertebral bodies might be likened to the old fashioned saddle bags draped across the back of a horse. This anatomic arrangement is of importance in reference to the spread of infection or hemorrhage. It is not uncommon to see a hemorrhagic extravasation from one kidney area envelope the opposite kidney. The tamponade effect of the perirenal fascia is of clinical interest in severe hemorrhage from an injured kidney and the wise urologist approaches the vascular pedicle of the kidney by dissecting medially between the peritoneum and the anterior renal fascia rather than exposing the kidney initially by opening this layer laterally and precipitating further hemorrage while yet at a distance from the renal vessels.

Retroperitoneal extravasation of urine or blood from an injured kidney, ureter or blood vessel may extend along the renal fascial layers and into the scrotum. The extension of infection from the kidney or perirenal area is guided to a considerable extent by these same limitations. It seems that whereas the gross direct extension of a malignant process is limited by a fascial barrier, yet, metastasis is in no way thus limited. Microscopic evidence of the growth of malignant cells along nerve fibers and in venous and lymphatic channels is common even when the gross tumor specimen appears to be limited by a fascial plane.

The etiology of nephroptosis is in part at least governed by the lack of fusion of the anterior and posterior renal fascial planes along their inferior borders. The protecting and supporting function of these tissues as far as the kidneys are concerned is quite evident and yet one must also remember that there exists a similar protective relationship to the large renal vessels.

As an aid in roentgen diagnosis the perirenal spaces occasionally are injected with air in order to define more clearly by contrast the outline of the adrenals and kidneys. This insufflation of air between the anterior and posterior renal fascial leaflets may lead to the spread of air to the opposite renal bed or toward the inferior surface of the diaphragm or along the ureter and gonadal vessels into the pelvis.

2. *The Transversalis Fascia.*—This layer has been discussed already in reference to the extraperitoneal extravasation of urine from the bladder. In the region of the kidneys this fascial plane lies in

rather intimate relationship to the muscular boundaries of the abdominal cavity.

In conclusion may I state that the clinician who understands the structure and disposition of the fascial planes is in possession of basic diagnostic and therapeutic armamentaria which will raise him above the level of mere empiricism.

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GASTROJEJUNOCOLIC FISTULA

AN ANALYSIS OF EIGHT CASES

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Gastrojejunocolic fistula occurs most often as a complication of gastric operation for duodenal ulcer. Less commonly it occurs as a complication of carcinoma of the stomach and, in rare instances, may be caused by intraperitoneal abscesses[7] and gastrointestinal tuberculosis.[7] Bargen and coworkers[4] reported a most unusual case due to ulcerative colitis.

Only the fistula which occurs as a complication of operation for peptic ulcer will be discussed here. The subject is important for several reasons. In the first place, it is a serious lesion which almost certainly will end fatally if left untreated, while, if recognized even reasonably early and properly managed, relief may be expected in more than 90 per cent of the patients, regardless of age. Secondly, the lesion is probably not as rare as was formerly supposed. Evidence will be presented which strongly indicates that 1 per cent or more of all patients who undergo posterior gastrojejunostomy for duodenal ulcer ultimately develop gastrojejunocolic fistulae. We are convinced from personal experience with this lesion that the principal reason it is not seen oftener is that the diagnosis is overlooked; this was the case in five of the eight cases reported in this study and only the stubborn refusal of the patients and relatives to accept a fatal prognosis prevented three of them from dying at home of "inoperable cancer." These tragedies are compounded by the almost ridiculous ease of diagnosis if the possible existence of the condition is entertained by the doctor in attendance: a look (at the extreme emaciation), a smell (of the breath), and two questions ("Have you ever been operated on for ulcers?" and "How many times a day do your bowels move?") are sufficient for the diagnosis in most cases. Lastly, the subject is important because it points up so dramatically that ". . . gastroenterostomy is a disease" and seldom should be performed in the presence of duodenal ulcer.

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INCIDENCE

Almost all cases of gastrojejunocolic fistula due to ulcer follow posterior gastrojejunostomy for duodenal ulcer. An occasional case is reported following inadequate gastric resection for duodenal ulcer. It is rare after any type of operation for gastric ulcer. It does not occur when the gastrojejunal anastomosis is anterior to the colon.

Ransom[10] (1944) reported that, of forty-seven patients with marginal ulcer, eight (17 per cent) developed fistulas into the colon; Walters, quoted by Marshall[7] (1944), reported twenty-three gastrojejunocolic fistulas in 169 cases of gastrojejunal ulcers, an incidence of 14 per cent; Benedict[5] (1933) also reported a 14 per cent incidence.

Considering the large number of posterior gastrojejunostomies done for duodenal ulcer in the last thirty years and recalling that those series which were followed carefully by frequent and regular interviews with each patient for five years or more by internist-surgeon-roentgenologist teams yielded from 24 per cent (Strauss et al)[11] to 34 per cent (Lewisohn)[6] incidence of gastrojejunal ulcers, it becomes apparent that gastrojejunocolic fistula is not rare. Taking an approximate incidence of 25 per cent gastrojejunal ulcers in all cases of posterior gastrojejunostomies performed for duodenal ulcer and assuming that about 15 per cent of these develop fistulas into the colon, it follows that about 4 per cent of all posterior gastrojejunostomies performed for duodenal ulcer ultimately develop into fistulas into the colon. We are willing to concede that this high figure is not entirely valid since those investigators who calculated the incidence of fistula formation (Ransom,[10] Benedict[5] and Walters)[7] reportedly did not use the personal, regular and prolonged follow-up of all gastrojejunostomies as used by Lewisohn[6] and others and, consequently, were unaware of many marginal ulcers in their series which did not produce symptoms and disability severe enough to warrant hospitalization and special study. It is, however, probably near the truth to say that 1 per cent or more of all posterior gastrojejunostomies performed for duodenal ulcer eventually will develop fistulas into the colon. The credibility of this estimate is strengthened by the fact that many of these fistulas develop from five to twenty years after the gastrojejunostomy (see table 1). It is this older age group, being in the cancer age and sometimes presenting an abdominal mass and extreme emaciation, that is apt to be diagnosed

as hopeless carcinomatosis and permitted to die in the home without the true diagnosis being suspected.

PATHOLOGY AND PATHOLOGIC PHYSIOLOGY

Gastrojejunocolic fistula following ulcer surgery is invariably preceded by gastrojejunal ulcer. The location of the ulcer is either at the stoma or distal to it. It rarely occurs on the stomach proximal to the stoma. So resistant is the stomach remnant to ulceration that a case described by Strauss[11] that was reoperated upon for marginal ulcer several years after a posterior gastrojejunostomy showed definite traces of the rubber covered clamps used previously on the stomach, and still there was no evidence of ulceration near the clamp marks or elsewhere in the stomach. In a case reported by Ransom[10] the ulcer and fistula were 18 cm. (7 inches) distal to the gastrojejunal stoma. Most often the ulcer and fistula are at or just distal to the stoma.

Table 1. *Duration and Age.*

Case	Interval Between Gastrojejunostomy and Development of the Fistula	Age at Which Fistula Developed
1. A. T.	11 years	67
2. W. N.	21 years	72
3. J. S.	13 years	57
4. J. D.	4 years	48
5. J. V.	14 years	44
6. L. F.	7 years	39
7. E. L.	2 years	39
8. J. W.	6 years	64

It is obvious that such an ulcer will set up a great deal of inflammatory reaction in the neighboring tissues and, if the primary operation was made through a rent in the mesocolon, the latter structure necessarily will be involved in the inflammation. The scarring will draw the colon nearer to the jejunal ulcer, the two eventually making contact and, if the inflammation continues, the ulcer will perforate into the colon and the fistula thus be established.

Many surgeons have commented on the severity of the inflammation about the fistula and the extreme friability of the tissues. Sometimes omentum and viscera in the region of the fistula are frozen into a hard mass which is palpable through the abdominal wall and which, even at operation, may be mistaken for an inoperable carcinoma by the unwary, as occurred in Case 3 of this series.

Clinical and roentgenologic observations have established the interesting fact that the actual erosion of the jejunal ulcer into the colon is sometimes preceded by irritation of the colon with diarrhea and tenesmus, thus giving warning of impending fistula formation and permitting radical correction of the ulcer before it is complicated by a colonic fistula (Marshall,[7] Walters and Claggett).[13]

Once the fistula is established the diarrhea begins. This diarrhea formerly was thought to be due to the passage of undigested food from the stomach into the colon. Pfeiffer and Kent[8] (1939) showed that this is not true. They demonstrated that the diarrhea most often was due to the irritating effects of the colonic contents on the jejunal mucosa. The evidence presented was, first, that these fistulas seldom are demonstrated by barium meal and almost always are discovered by barium enema, indicating that stomach contents do not as a rule enter the colon; second, the sudden and usually complete cessation of the diarrhea when a colostomy is established proximal to the fistula; thirdly, one of their cases continued to have one or two stools by rectum daily after the colostomy was established, indicating that in this patient food did pass from the stomach into the colon; even so, the diarrhea ceased showing that the passage of food from the stomach into the colon does not necessarily cause diarrhea. Barber and Madden[3] (1947) reported a similar case.

As a result of the severe diarrhea (five to twelve copious stools daily are usual), there ensues weight loss (20 to 40 pounds), hypoproteinemia, avitaminosis, anemia and electrolyte disturbances. The stools are copious, foul smelling and sometimes frothy. These characteristics led to erroneous diagnoses of nocturnal diarrhea and sprue in Cases 2 and 6 of this series. It is worthy of mention that both of these errors occurred in the same university hospital.

Although it is obvious, it is also important to state that the degree of nutritional disturbance is determined by the duration of the diarrhea. This is apparent from a study of our own cases; its importance lies in the fact that the nutritional state of the patient will in certain cases determine the method of surgical management and, since it appears that the severity of these disturbances depends almost entirely on the duration of the diarrhea, a surgeon will be alerted to the danger of a one stage radical procedure if the diarrhea has been prolonged—a year or more—and will investigate the nutritional state thoroughly before embarking on such a venture. Only three of our cases had had diarrhea for a year or more; two of these had ankle edema and clinical signs of avitaminosis. The only one of the series with ascites had had diarrhea for two years, the longest duration of diarrhea in our series and the most desperately ill patient. None of the patients whose diarrhea had existed for less than a

Table 2. *Clinical Data.*

Case	Duration of Diarrhea	No. Stools in 24 hrs.	Wt. Loss Since Diarrhea	Ankle Edema	Ascites	Clin. Signs Avit.	Vis. Peristallis	Foul Breath
1. A. T.	24 mo.	12	40 lbs.	Yes	Yes	Yes	No	Yes
2. W. N.	12 mo.	10		Yes	No	Yes	No	Yes
3. J. S.	18 mo.	10		No	No	No	No	Yes
4. J. D.	8 mo.	10	40 lbs.	No	No	No	Yes	Yes
5. J. V.	5 mo.	5	30 lbs.	No	No	No	Yes	Yes
6. L. F.	4 mo.	7	20 lbs.	No	No	No	No	Yes
7. E. L.	1 mo.	8	15 lbs.	No	No	No	No	No
8. J. W.	2 mo.	very frequent	35 lbs.	No	No	No	No	No

Table 3. *Laboratory Data.*

Case	RBC	GMS HHB	TOT, Prot.	Alb.	Glob.	A-G Rat	Pro-thr. time.	Bl. time.	Cl. time.	Bl. Sug	NPN	Bl. Chl.	Ser Cal	Ser Phos
1. A. T.	3, 0	10	5.4	2.7	2.7	1.0	80		3′	83	34	408	6.0	7 1
2. W. N.	3, 8	12	4.5	2.8	1.7	1.6	66	2′ 9″	3½′		31	646	6.2	2.6
3. J. S.	4, 4	12	6.3	3 2	3.1	1.0								
4. J. D.	4, 0	12							2′	81	30	445		
5. J. V.	4, 4	13	7.1	3.7	3.4	1 0	89	2′	3½′	90	32			
6. L. F.	4, 0	13	6.4	3.9	2.4	1.6		3½′	2′	85	25			
7. E. L.	4, 8	13	6.0	3.9	2.1	2.0		1′		98	24			
8. J. W.	4, 3	14	6.2	4.0	2.2	1.9					31			

year had ankle edema, clinical signs of avitaminosis or ascites. Tables 2 and 3 show the clinical and laboratory findings of each of our cases.

Of interest is the relatively mild anemia in the face of other advanced nutritional disturbances. Only in two cases was the red blood cell count below 4,000,000 and in only one case was the hemoglobin below 12 grams. This has been commented on before in a series of forty cases reported by Atwater, Butt, and Priestley.[2] They called attention also to the prolonged prothrombin time and low serum proteins. A few of their cases had laboratory determinations for blood vitamin levels and all determinations were found to be low. Liver function tests were not done on any of their patients but when the gross appearance was commented on it was described as fatty. One of their cases had carpopedal spasm but blood calcium was not measured. Two of our cases had blood calcium determinations and both were low. Blood chloride determinations were made in three of our cases and were low in two. These findings would suggest the preoperative parenteral administration of sodium chloride and calcium to these patients.

Two of our cases had stomatitis and dermatitis and one of these had mild psychic changes. Since all of these symptoms and findings disappeared as nutrition improved it is probable that they were due to vitamin deficiencies.

DIAGNOSIS

It is no exaggeration to say that most gastrojejunocolic fistulas diagnose themselves if the attending physician merely considers the possibility of the existence of such a condition. Severe diarrhea, extreme emaciation and a history of a stomach operation for ulcer are the classical points in the far advanced cases. Foul smelling eructations and distension with visible peristalsis are frequently present; the latter are not due to obstruction but to the violence of the peristalsis which sometimes is audible several feet from the bedside. The other symptoms and findings depend on the severity of the nutritional disturbances which, in turn, are dependent on the duration of the diarrhea. Epigastric pain may occur but is not a constant symptom.

Of great clinical importance is the diagnosis of impending colonic fistula when a marginal ulcer is known to exist. Marshall[7] (1944) and Walters and Claggett[12] (1939) have called attention to this important phenomenon. The latter reported fifty cases of gastrojejunocolic fistula with a mortality of 32 per cent and seventeen cases of impending fistula formation with a mortality rate of 17 per cent. Marshall described a case in detail and presented rentgenograms of the barium-filled stomach and transverse colon in contact with one another; the patient complained of mild intermittent diarrhea and tenesmus and was known to have a marginal ulcer. The impending fistula was proven at operation. The surgical management of a marginal ulcer, though often difficult, is vastly simpler than the same case would be if complicated by a fistula into the colon. Case 4 of our series in all probability had an impending fistula when he was hospitalized for "unexplained diarrhea" which subsided with bed rest and alkalies six months before his final admission. Ironically, his was the only death in our series.

Examination of table 4 makes it apparent that these cases are often misdiagnosed. Five of the eight cases were under the care of physicians for prolonged periods of time without the proper diagnoses being made. The mistaken diagnosis in each case is listed in the table.

Table 4. *Diagnoses Before Final Correct Diagnoses Were Made.*

Case	Diagnoses When First Seen by Physician for Diarrhea	Advice Given Before Correct Diagnosis Was Made
1. A. T.	Inoperable cancer	No further surgery
2. W. N.	Nocturnal diarrhea; macrocytic anemia. (3 admissions to hospital during period of diarrhea.)	Given medicine to take
3. J. S.	Inoperable cancer (diagnosis made at operating table.)	No further surgery.
4. J. D.	Gastrojejunocolic fistula	Operation
5. J. V.	Inoperable cancer	Sent to surgeon for confirmation of diagnosis so he would be satisfied to die at home.
6. L. F.	Sprue. (Hospital)	Given medicine
7. E. L.	Gastrojejunocolic fistula	Operation
8. J. W.	Gastrojejunocolic fistula	Operation

Of interest is the gastroscopic examination of Case 6, performed by Dr. William Knight, Jr. His was the dubious privilege of witnessing a formed stool ooze into the stomach from the colon.

TREATMENT

Before the use of whole blood and antibiotics in the preoperative and postoperative care of surgical cases the mortality rate of surgical correction of gastrojejunocolic fistulas was high, from 25 per cent to 63 per cent.[8] The principal causes of death

were surgical shock, peritonitis, wound disruption and pneumonia.

Coller[8] (discussion), in 1939, stated that since 1930 he had been preparing these patients with high protein, high carbohydrate, high vitamin diets and transfusions of whole blood and that of the next fourteen cases only the first two died, a mortality rate of 14 per cent. This was the first definite reduction in the mortality rate in a relatively large series of cases. He stated also that he had used the aseptic technic described by Allen[1] (1937) in these cases and that he considered his low rate of mortality to be due in large part to this technic. None of his cases had gastric resections; simple restoration of all lumens was done in each case.

Pfeiffer and Kent[8] (1939) presented two cases of their own and one operated on by Colp in which a preliminary ascending colostomy was followed in each case by a cessation of the diarrhea and a most remarkable gain in weight and strength, so that after three months each of these patients withstood the repair of the fistula well. In 1941 Pfeiffer[9] reported fifteen cases of gastrojejunocolic fistulas operated upon by twelve different surgeons, a preliminary colostomy having been done in each case. There was one death, a mortality rate of 6.6 per cent, the lowest reported up to that time. When it is considered that eleven of the fifteen cases had gastric resections in addition to the repair of the jejunum and colon, the value of the preliminary colostomy is apparent. Figure 1 illustrates diagrammatically the Pfeiffer technic. The one case that died failed to improve after the colostomy; at operation two months later a low lying duodenal ulcer penetrating the head of the pancreas was found and a gastric resection was done. Death was due to "blow-out" of the duodenal stump. Another case of this series which was operated on by Priestley had a similar discharge from the distal limb of the colostomy which was controlled easily by plugging the loop with gauze. One case in the series had leakage from the suture line in the colon, as shown by barium enema, without ill effects because of the decompressing function of the colostomy. It is well to relate that in Case 1 of our series the colon was densely adhered to the

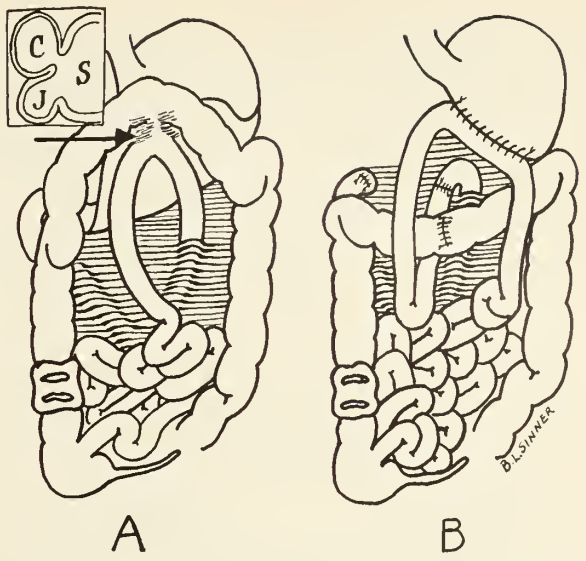


Fig. 1. Pfeiffer's method, diagrammatic. A. The greater curvature is turned upward exposing the posterior surface of the stomach; the arrow points to the posterior gastrojejunostomy and the fistula into the colon. The insert shows the gastrojejunocolic fistula in cross-section. The preliminary ascending colostomy is shown. B. Shows second stage radical correction: subtotal gastric resection, repair of the rent in the colon, resection and end-to-end anastomosis of involved jejunum. Colostomy to be closed later.

Table 5. *Types of Operation and Results.*

Case	Preoperative Condition	Type of Operation	Results
1. A. T.	Aged 39. Diarrhea 2 yrs. Dermatitis, stomatitis, hypoproteinemia, anemia, phychic changes; ankle edema, ascites, myocardial damage. Active duodenal ulcer penetrating head of pancreas. Lost 40 pounds.	1 stage, ascending colostomy. 2 stage 3 weeks later: Restoration of colon, resection jejunum with end-to-end anast.; subtotal (3/4) resection of stomach; atypical closure of duodenum.	Excellent; symptom-free 3 years postop. Gained 30 pounds. Occas. digitalis for heart damage. Self-supporting first time in 15 years at age 70.
2. W. N.	Aged 74. Diarrhea 1 yr. Weight loss, stomatitis, ankle edema, anemia. Arteriosclerot. heart dis. Scarring duodenum, with partial obstruct.	Restoration of colon; post. gastrojejunostomy converted to anterior gastrojejunostomy, using same openings in stomach and jejunum.	Good immediate; gained 40 lbs., stomatitis and ankle edema disappeared. 1 yr. postop. epigastric pain; gastroscope showed marginal ulcer; not confirmed by x-ray.
3. J. S.	Aged 58. Diarrhea 18 mo. Loss of wt. Severe asthma. Myocarditis & cardiac irreg.	1 stage Lahey-Marshall. Asthma attack on oper. table. 2 stage not done.	Excellent. Symptom free 3 yrs. postop. Gained 40 lbs. Fistula healed.
4. J. D.	Aged 48. Diarrhea 8 mo. Loss of 40 lbs.	Restoration of lumens in 1 stage.	Died 4th postop. day from peritonitis.
5. J. V.	Aged 44. Diarrhea 5 mo. Loss of 30 lbs.	Restoration of all lumens in 1 stage.	Excellent; symptom free 2 yrs. postop.; gained 20 lbs. Refuses gastric resection.
6. L. F.	Aged 39. Diarrhea 4 mo. Loss of 20 lbs.	One stage: restoration of colon, resection of jejunum with end-to-end anast., subtotal (3/4) gastric resection.	Excellent; symptom free 14 mo. postop. Gained 20 lbs.
7. E. L.	Aged 39. Diarrhea 1 mo. Loss of 15 lbs.	One stage: restoration of colon & jejun., subtotal gastric resection (3/4)	Excellent; symptom free 6 yrs. postop.
8. J. W.	Aged 64. Diarrhea 2 mo.	One stage; restoration of colon & jejunum, subtotal (3/4) gastric resection.	Excellent; symptom free 2 yrs. postop.

Surgeons were: Case 1, B. L. Sinner, M.D.; Case 2, J. E. Von Kaenel, M.D.; Case 3. J. E. Von Kaenel, M.D.; Case 4. Hermann Maas, M.D.; Case 5, W. G. Marston, M.D.; Case 6, L. V. Mulligan, M.D.; Case 7, Dean Sauer, M.D.; Case 8, A. J. Motzel, M.D.

superior mesenteric vessels and the posterior margin of the hole in the colon lay against the vessels so that the last stitch could not be placed beyond the rent—obviously an imperfect closure. The

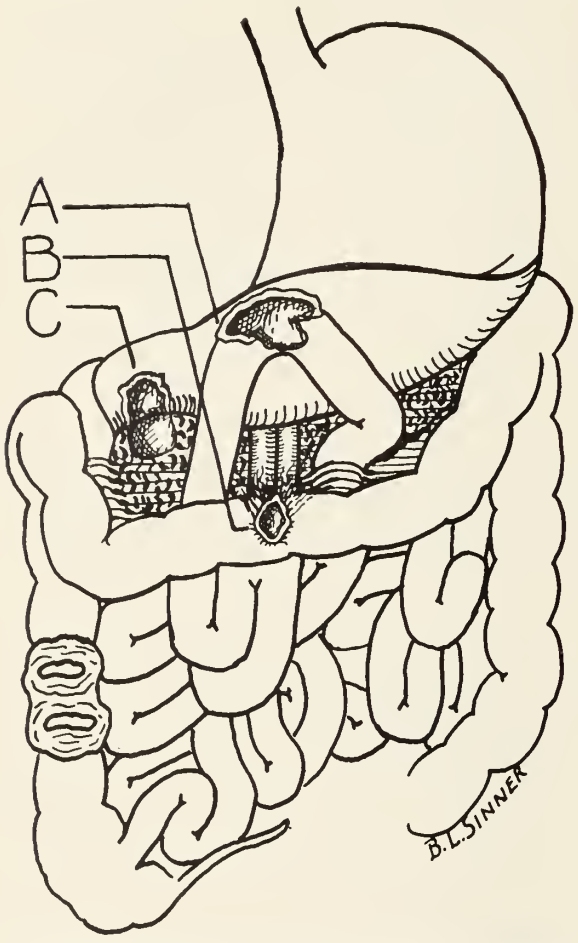


Fig. 2. Situation found at operation in Case 1. The ascending colostomy had been done three weeks before. A. Posterior gastrojejunostomy and marginal ulcer which have been separated from the colon and turned upward. B. Opening in the colon and dense adhesions of the colon to the superior mesenteric vessels, precluding resection and interfering with perfect closure (see text). C. Large posterior duodenal ulcer turned upward, exposing deep crater in head of pancreas; there was visible seepage of pancreatic juice from the crater. Great deal of ascitic fluid.

The involved jejunum was resected and continuity reestablished end-to-end; the hole in the colon was sutured; a subtotal gastric resection was done; a plastic closure of the duodenal stump was done in such a way that the crater remained inside the duodenal lumen (Nissen's technic). Except for leakage of ascitic fluid from the wound (negative for pancreatic ferments) and prolapse of the colostomy, convalescence was good. The colostomy was closed three weeks later. Ascites persisted for about six months.

surgeon (B. L. S.) was convinced that resection of the colon was out of the question because of the dense adherence to the mesenteric vessels. Such a closure in the face of the severe ascites would probably have resulted in a fatal peritonitis were it not for the proximal colostomy. Figure 2 shows the situation encountered at operation in Case 1.

Barber and Madden[3] (1947) reported five cases treated with a preliminary colostomy, all of whom survived; Mathewson, quoted by Barber and Madden,[3] reported a case successfully operated upon after preliminary colostomy; one of our cases was similarly treated. Thus there are twenty-two cases so treated already reported in the literature with one death, a mortality rate of 4.5 per cent.

In the discussion of the first paper by Pfeiffer and Kent[8] (1939) Lahey stated that he had done two cases by a preliminary ileo-descending colostomy followed in two weeks by resection of the right and transverse colon, gastric resection and repair of the jejunum (fig. 3). Marshall[7] (1944) reported fourteen cases so treated with one death, a mortality rate of 7.1 per cent. The patient who died had the entire procedure in one stage and Marshall regarded the death as preventable on that account. The method is of value in that the patient can leave the hospital soon afterward to regain his weight and strength and with no colostomy to complicate his life. On the other hand it commits the surgeon to a resection of half or more of the colon in addition to an operation frequently extensive in itself. The fistulas healed after the first stage in two of Marshall's fourteen cases as did one in Pfeiffer's series.

Wangensteen in discussing a paper by Ransom[10] (1944) stated that he had done five consecutive

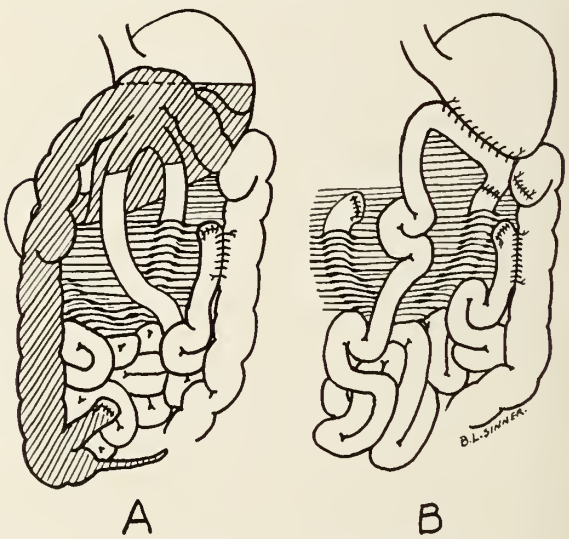


Fig. 3. Lahey-Marshall method, diagrammatic. A. The greater curvature is turned upward exposing the posterior surface of the stomach, the posterior gastrojejunostomy and the fistula into the colon. Shows first stage operation: division of terminal ileum and anastomosis of proximal end to the descending colon side-to-side. Diagonal hatching indicates what will be removed at second stage. B. Second stage. Removal of terminal ileum, ascending and transverse colon, involved jejunum, and lower three-fourths of the stomach; anastomosis of jejunum end-to-end, end-to-side gastrojejunostomy, closure distal segment of colon.

gastrojejunocolic fistulas in one stage without a death. All had aseptic resections of the stomach, colon and jejunum with end-to-end repair of the jejunum and colon and a Hofmeister anastomosis of the jejunum to the stomach (fig. 4). He stressed the importance of thorough mobilization of the hepatic and splenic flexures in this procedure. This

is a fine record and if the series can be extended to twenty or more with a mortality rate near 5 per cent, it will have to be regarded as the treatment of choice wherever good preoperative care and anesthesia are available. Three cases in our own series were similarly treated, except that aseptic technic was not used, and all survived, making a total of eight reported cases radically treated in one stage without a death.

COMMENT

We feel that the duration of the diarrhea is the most important factor in the choice of operation and we feel that this point has not been sufficiently stressed. In those cases of our series in which the diarrhea was present for only a few months, there were no signs of avitaminosis, no ankle edema, no ascites and no anemia; nor did the descriptions of the operations reveal any marked inflammatory changes in the region of the fistula. On the other hand, those cases whose diarrhea had existed for a year or more, especially the 69 year old man who had had twelve stools a day for two years, and the 58 year old man who had had ten stools a day for eighteen months, presented physiologic and mental states so depressed and inflammatory conditions so extensive that we feel that a one stage repair including a gastric resection was out of the question.

Although the preliminary colostomy is a life saving procedure in advanced cases, it cannot be regarded as an unmixed blessing. Exteriorization of the right colon is usually a messy procedure; there is a high incidence of prolapse, wound infection, herniations about the colostomy and leakage of gastric contents from the distal limb in the cases reported by Pfeiffer[9] and by Barber and Madden.[3] The one done in our own series prolapsed to a large size, due probably to the severe ascites, and severely aggravated the mental depression of the patient. Even so, the procedure was life-saving in this case and there is serious doubt in the mind of the surgeon (B. L. S.) whether he would have tolerated even a first stage Lahey-Marshall procedure at the time of his first operation.

The Lahey-Marshall procedure produced a happy result in the one case (Case 3) in which it was used. The patient's fistula has since healed and he has had no gastrointestinal complaints since the operation three years ago. We feel that it is less frequently indicated than either the one stage radical correction (Wangensteen) or the preliminary colostomy followed by radical correction (Pfeiffer).

The one stage radical correction of the fistula, including gastric resection, is probably the ideal form of management of these serious lesions if tempered with caution in the long standing cases and if good anesthesia and good preoperative and postoperative care are available. In selected cases simple restoration of all lumens is a satisfactory procedure, but it has the disadvantage that the basic disease, the ulcer diathesis, is left unrelieved. In all series reported (Pfeiffer, Barber and Madden, Ransom, Walters and Claggett, Atwater, Butt, and Priestley) 50 per cent or more of the cases in which simple restoration was done had reactivation of their duodenal ulcers to such an extent that gastric resection had to be done later. All the authors agree that subtotal resection of the stomach is preferable to simple restoration.

SUMMARY AND CONCLUSIONS

Eight cases of gastrojejunocolic fistula following posterior gastrojejunostomy for duodenal ulcer are presented.

The condition often is diagnosed erroneously and is probably more frequent than heretofore supposed. Evidence is presented to show that probably 1 per cent or more of all patients who undergo posterior gastrojejunostomy for duodenal ulcer develop fistulas into the colon.

The operation of choice is the dismantling of the fistula and subtotal (three fourths) gastric resection. Whether this should be done in one or two stages depends on the physiologic state of the patient which, in turn, depends in large part on the duration of the diarrhea.

Clinical and laboratory data are included. Previously unreported findings are low blood calcium and low blood chlorides. These findings suggest the parenteral administration of calcium and saline solution during the preoperative and early postoperative period.

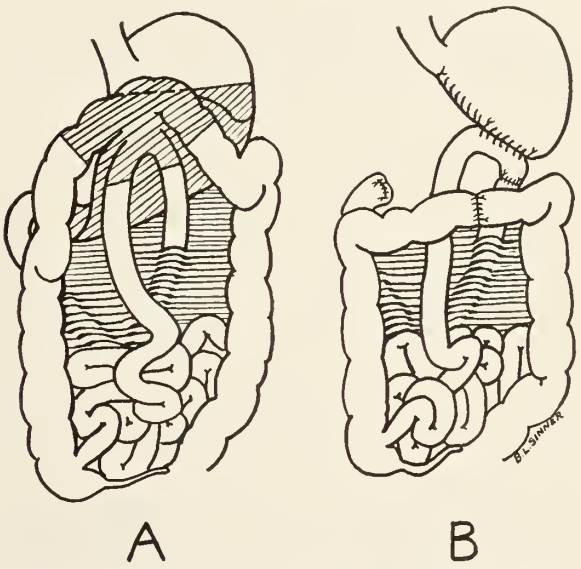


Fig. 4. One stage radical correction (Wangensteen), diagrammatic. A. Stomach turned upward showing posterior gastrojejunostomy and fistula into the colon. Diagonal hatching indicates what is removed: several inches of the colon and jejunum on either side of the fistula and the lower three-fourths of the stomach. B. Operation completed. Aseptic end-to-end repair of colon and jejunum; aseptic end-to-side (Hofmeister) retrocolic gastrojejunostomy.

607 No. Grand.
634 No. Grand.

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DIFFUSE PULMONARY INFILTRATION ACCOMPANYING EOSINOPHILIC GRANULOMA

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ST. LOUIS
AND
EDMUND A. SMOLIK, M.D.,
ST. LOUIS

EOSINOPHILIC GRANULOMA of bone and its relationship, if any, to the Hand-Schuller-Christian syndrome is undetermined. Pulmonary fibrosis, or the so-called "honeycomb lungs" accompanying frank reticulo-endothelial disorders, has been described.[1, 2] Recently Parkinson put on record a case of pulmonary infiltration with osseous eosinophilic granuloma but with associated diabetes insipidus.[3] The case reported here is that of a diffuse pulmonary infiltration with proven osseous eosinophilic granuloma but free of any of the additional protean manifestations of generalized xanthomatous diseases.

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HISTORICAL

Since Mignon's description, there have been noteworthy contributions to the literature concerning this subject. A review of the available material, however, leaves much to be desired with regard to an understanding of the etiology, extent of clinical involvement and pathologic interrelationship of the process.

Schairer reported a case of "osteomyelitis with eosinophilic reaction."[4] Otani and Ehrlich described a "solitary granuloma of bone."[5] Lichenstein and Jaffe first termed the lesion "eosinophilic granuloma of bone."[6, 7] Loehr's report[8] described lesions in the small bones of the hand. Ackerman[9] reported the concomitant involvement of the diaphragm and the antero-mediastinal space, with proven osseous lesions. Dundon, Williams and Laipply[10] recorded pulmonary perihilar densities accompanying osseous lesions.

Table I. *Post Operative Days*

	Pre-operatively	5	13	16	18	23	27	300
WBC	10,000	10,650	11,000	13,000		11,700	9050	8,880
% Eosinophils	0	0	5	4		5	2	1
Radiographs	Left Frontal Osteolytic Lesion	Moderate Diffuse Pulmonary Infiltration		Dense Generalized Infiltration		Early Subsiding Infiltration	Subsiding Infiltration	Normal Chest Film (a) Healing Skull Lesion (b)
Sputa Studies			Normal		Normal			
Total Cholesterol				*183* mgs. %			*212* mgs. %	*158* mgs. %
Total Protein				*7.6* gms. %			*6.8*	
Bence-Jones Protein				Negative			Negative	
Acid Phosphatase			*2.3* Gutman Units					
Alkaline Phosphatase			2.5 Bodansky U.					
Sternal Bone Marrow			Normal					
Sedmentation Rate							27 mm/hr.	7 mm/hr.

CLINICAL CONSIDERATIONS

Pain is most often the presenting symptom. It usually is confined to the area about the bony lesion. At times this is of an insidious onset but, in the greater percentage of reported cases, trauma has antedated any such pain. Symptomatic manifestations are inconstant but may include a mild degree of hyperpyrexia and malaise. In some cases, a variable degree of vague gastro-intestinal upset has been observed. The radiographic studies reveal ovoid osseous defects. In 60 per cent of the cases these lesions are multiple. There are no radiographic characteristics to allow differentation from such bony lesions as multiple myeloma, metastatic tumor, osseous inflammatory processes or osseous manifestations of some of the reticulo-endothelial disorders, e.g., Hand-Schuller-Christian disease, Letter-Seives' disease. No constant bodily biochemical alterations are known. Hematologically, there may be a mild leukocytosis accompanied, in some cases, by a mild peripheral eosinophilia.



Fig. 1. Anterior-posterior view of skull showing preoperative skull defect in left frontal bone.



Fig. 2. Eleven months postoperatively. Anterior posterior view of skull showing healing of lesion.

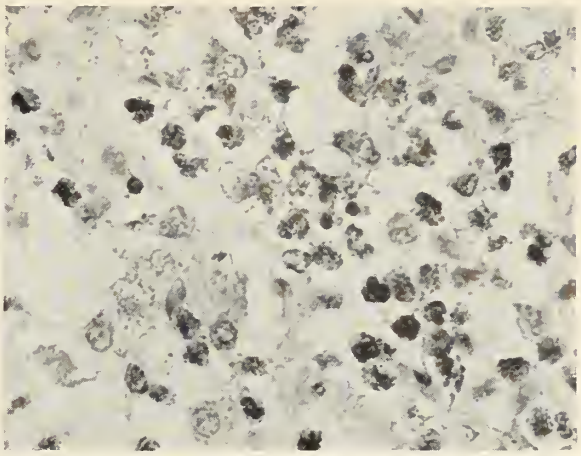


Fig. 3. Photomicrograph of specimen.

PATHOLOGY

Grossly, bony lesions show diffuse medullary involvement, with total or subtotal cortical destruction. The lesion is of a brownish-gray color with a soft, mushy appearance, and with no acute definition of the periphery. Microscopically, the picture is one of a granulomatous lesion with considerable eosinophilic leukocytic infiltraton. The degree of infiltration varies from lesion to lesion. Scattered among these cells, and especially dense in necrotic

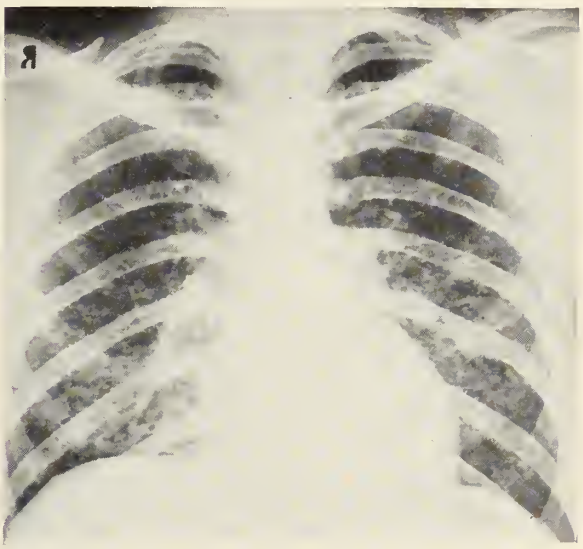


Fig. 4. Four days postoperatively. Moderate diffuse pulmonary infiltration.

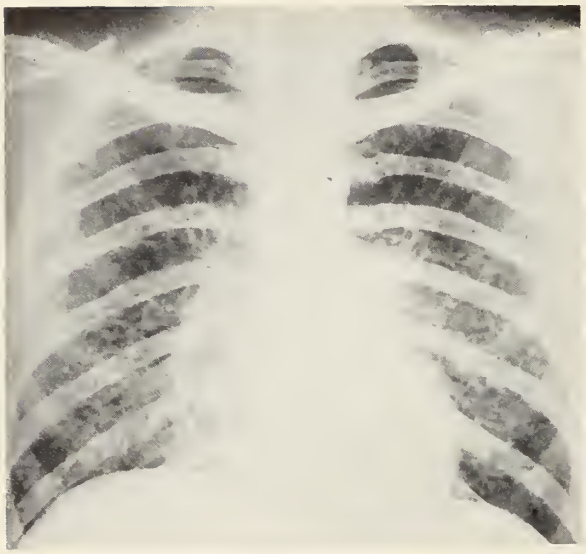


Fig. 5. Eleven days postoperatively. Dense generalized infiltration.

areas of bone, are large multinucleated cells, evidently phagocytes with their debris laden cytoplasm. The origin of these cells has been of question. Some investigators have attributed their presence to activity of the multipotent reticulum cells of the adventitia of vessels of the bone marrow. Others believe that their origin is from the process of coalescence of proliferating stromal cells.

The question of the relationship of this lesion to



Fig. 6. Fourteen days postoperatively. Early subsiding infiltration.

certain other reticulo-endothelial disorders has been considered previously.[11, 12, 13] Some have held that eosinophilic granuloma represents not a separate clinical entity, but "variations in degree, stage of development and localization" of the same basic process. The question is, as yet, unsettled. However, the occurrence of pulmonary infiltration accompanying frank eosinophilic granuloma serves to relate more closely the two processes. The nature of these densities are unknown. However, further study of the role of the pulmonary tissue in lipoid metabolism[14] may help to explain the nature of these densities.

TREATMENT

We believe that surgical intervention is the method of choice. The direct investigation of the bony lesion offers tissue specimen so that definite



Fig. 7. Twenty-four days postoperatively. Subsiding infiltration.

microscopic diagnosis may be obtained. At the time of operation, complete extirpation of the lesion may be possible and, subsequently, osteoplastic procedures can hasten repair of the bony defect. Radiotherapy in large, or multiple, lesions is also beneficial.

At present, there is no clear indications for the treatment of visceral manifestations.

The prognosis is excellent, with no known deaths directly attributable to the process.

CASE REPORT

J. H. V., male, aged 29 years, was referred by Dr. A. Raemdonck to one of us (E.A.S.). He was admitted on January 5, 1949, to the neurosurgic service at St. John's Hospital because of complaint of pain confined to the left frontal region. The past history was essentially normal.

Four months prior to entry the patient was struck in the left frontal area by a hard metal object. Some slight local tenderness persisted. There were no systemic manifestations but about three months later, while bending over, the patient noticed an increase in pain. On exploring the area with his fingers he noticed an irregular depression. This prompted him to consult

a physician. On his entry into the hospital, the physical and neurologic examinations were entirely negative with the exception of a marked tenderness in the left frontal area. Palpation of this region revealed a tender irregular defect in the skull about 4 centimeters in diameter. Radiographic studies showed osteolytic changes as seen in figure 1. Additional routine laboratory studies gave normal findings.

On January 6, 1949, under sodium pentothal and local anesthesia, a small, left horseshoe frontal, skin-galeal flap was turned down. The periosteum was purple-red and thickened. A horseshoe flap of this also was made and dissected carefully over the defect. Attached to the periosteum was a granular material that separated from an underlying gray, putty-like mass that involved the entire thickness of the bone. This entire area was curetted down to the dura, where there were a few fine dural adhesions. The bone edges were rongeured. The area was filled with bone shaving obtained from multiple small drill openings. The periosteum was resutured. The galea and skin were replaced in anatomic layers.

Microscopically, the specimen showed numerous eosinophilic leukocytes with their deeply stained nuclei and coarse granular cytoplasm in a loose edematous ground substance. Between aggregations of eosinophils are faintly outlined histiocytes (fig. 3).

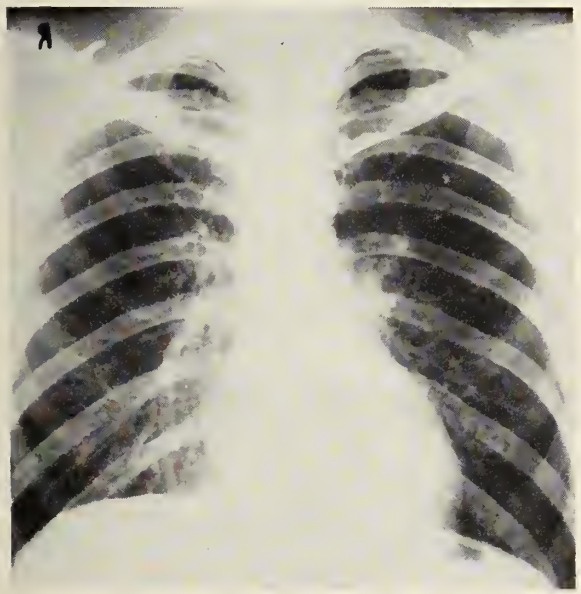


Fig. 8. Eleven months postoperatively. Resolution of infiltration.

X-ray studies of the entire skeletal system revealed no additional lesions. However, chest films revealed a diffuse pulmonary infiltration, as shown in figure 4. Reference to table 1 shows that at this time, there was a minimal leukocytosis with a normal differential study and no eosinophilia. Subsequent serial chest films, as noted in figures 5, 6, and 7, show a progressive degree of pulmonary infiltration. This is accompanied by an increasing leukocytosis and a mild peripheral eosinophilia (refer to table 1). A regression of the infiltration parallels a return of the hematologic picture to normal. Figure 8 shows normal chest film eleven months postoperatively.

An x-ray of the skull taken eleven months later (fig. 2) shows healing of the osteolytic lesion.

Sputa studies for organisms and cells showed no deviation from the normal. The blood cholesterol levels remained within the laboratory normals, as did the total protein. Bence-Jones protein was not detected. Alkaline and acid phosphatase were normal. A bone marrow study (sternal) was normal. There was a slight elevation of sedimentation rate.

Throughout this period the patient remained subjectively normal and there were no gross objective abnormalities, pulmonary or otherwise.

CONCLUSIONS

1. A case of diffuse pulmonary infiltration accompanying proven osseous eosinophilic granuloma is reported.

2. Trauma, antedating the onset of symptoms, is given support as a factor in the etiology of eosinophilic granuloma.

3720 Washington Ave.

The authors wish to express their thanks to L. R. Sante, M.D., Professor of Radiology, St. Louis University School of Medicine, and W. H. Bauer, M.D., D.D.S., Professor of Pathology, St. Louis University School of Dentistry, for their cooperation in the review of the radiographic and microscopic studies.

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FIND NEWER SULFA DRUG DESIRABLE FOR CHILDREN

Successful use of gantrisin, a sulfa drug formerly called NU-445, in treating children is reported by Drs. John A. Bigler of the Children's Memorial Hospital, Chicago, and Orville Thomas of Shreveport, La.

Good results were obtained in 55 children with pneumonia, bronchitis, tonsillitis, urinary infection and ear inflammation, the doctors say in the May issue of the *American Journal of Diseases of Children*, published by the American Medical Association.

Gantrisin is low in toxicity, they point out. It also has the advantage of a high degree of solubility which assures that the drug will not crystallize in the body.

Gantrisin has been used successfully to treat two patients with meningococcic meningitis, according to the doctors.

FAMILY DOCTORS OUTNUMBER SPECIALISTS TWO TO ONE

Nearly two out of every three physicians in private practice in this country are family doctors.

This is brought out by the American Medical Association's recent count of physicians in connection with its publication of the 18th edition of the American Medical Directory, according to Frank V. Cargill, Chicago, directory editor.

The new directory shows that the physicians of the United States are in the following classifications: 72,550 are in general practice and 22,976 are in general practice but give some attention to a specialty; 54,891 limit their practice to a specialty; 12,536 are in federal government service; 9,700 are retired or in fields not related to medicine; 3,737 are in administrative, editorial or other executive positions related to medicine, and 24,887 are interns, resident physicians or full time physicians in hospitals.

The previous directory, issued in 1942, listed the number of physicians in the United States as 180,496. In the 1950 edition the number is 201,277, an increase of 20,781 and an average yearly gain of 2,598 during the last eight years.

California leads in the number gained, with 16,668 physicians in 1950 as compared with 12,365 in 1942, an increase of 4,303. New York state shows a gain of 2,284; Texas, 772; Pennsylvania, 704; Florida, 634, and Massachusetts, 603.

Among the 24 largest cities in the United States, New York City (including Brooklyn) is first in physician population with 17,915 physicians, an increase of 1,244 since 1942. Chicago is second with 7,477, a gain of 294; Philadelphia is third with 4,894, an increase of 649; Los Angeles is fourth with 4,183, a gain of 811, and Boston is fifth with 3,388, a gain of 454.

Distribution of the directory is scheduled to begin May 22, Mr. Cargill said. A new feature of the 1950 edition is the inclusion of data on the World Medical Association, covering historical material, officers and representatives and the medical manpower of various nations.

TWO ANTIHISTAMINIC DRUGS FAIL IN CONTROLLED TEST AGAINST COLDS

As a cure for the common cold, two antihistaminic drugs taken within 24 hours after the onset of symptoms are no better than placebos.

This is the conclusion of a group of U. S. Army Medical Corps officers who made a controlled study of the drugs (tripelennamine hydrochloride and chlorothen citrate) at West Point.

An effort was made to ascertain whether patients receiving medicaments early in the course of their illness were more likely to be cured than those starting treatment later.

"Patients who began treatment within 24 hours after the onset of a head cold were about as likely to be among those reporting no help as among the group reporting cures," the researchers say in the May 13 *Journal of the American Medical Association*. They added:

"This was approximately equally true of patients receiving all forms of treatment (including placebos)."

The antihistaminic drugs appear to lessen nasal discharge, however, the article indicates.

There has been a paucity of controlled studies of the effects of antihistaminic drugs on the common cold, the authors point out. Any form of treatment of the common cold is influenced by so many factors that only a controlled study provides results on which valid conclusions can be based.

The West Point study included 190 patients, all healthy young men in the military service. Medical attention was given before duties were begun, eliminating the temptation to report to sick call to avoid duties. Physicians prescribing treatment and making the follow-up examinations 72 hours after treatment was begun were unaware of what medicines the patients were receiving.

The study was made by Lieut. Col. R. J. Hoagland, Capt. E. N. Deitz, Lieut. P. W. Myers and Lieut. H. C. Cosand.

FERMENTATION DRUG COMBATS EYE INFECTIONS

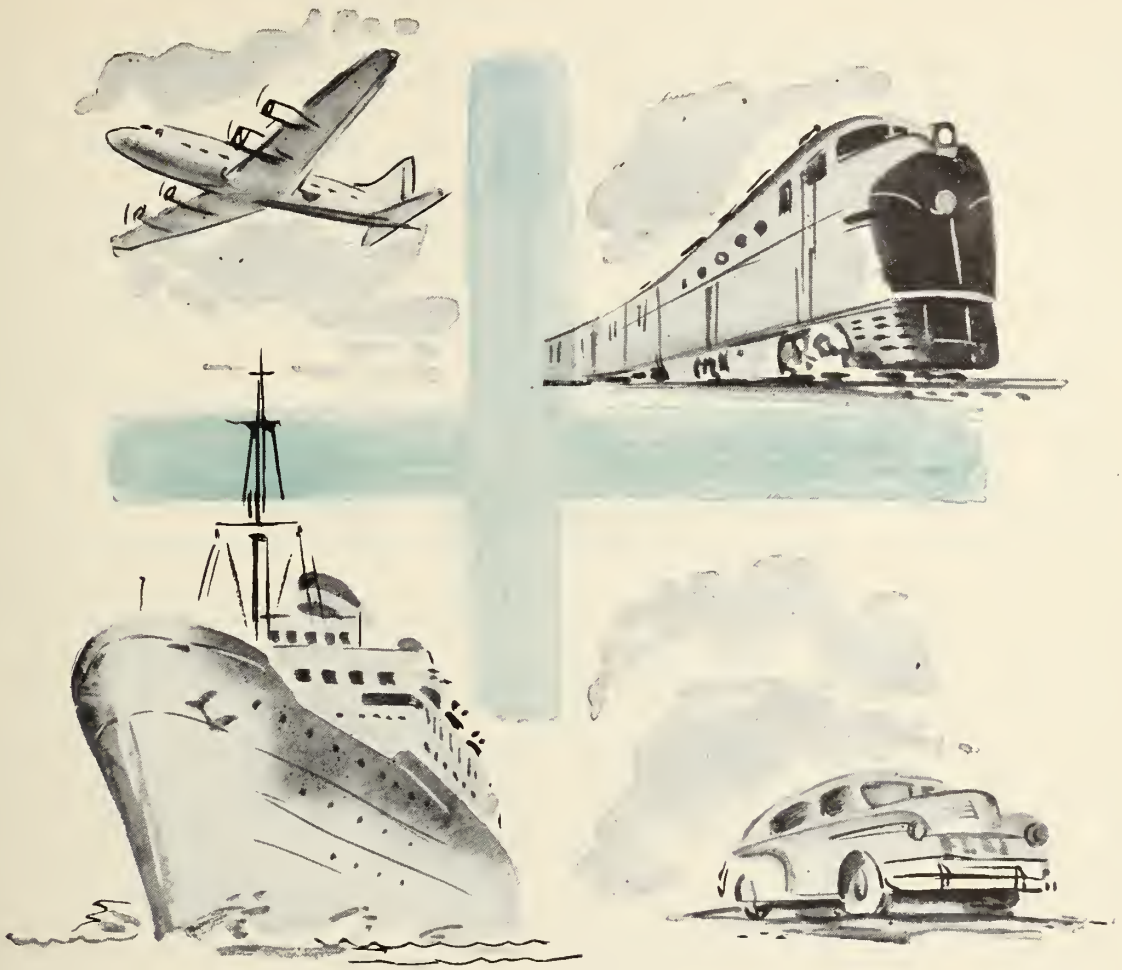
Successful treatment of eye infections with sodium propionate, a drug derived from a substance produced in a fermentation process, is reported by a New York doctor.

The drug is effective against all the bacteria causing common eye infections and against fungi, Dr. Frederick H. Theodore of Mount Sinai Hospital and the Manhattan Eye, Ear and Throat Hospital reports in the May 20 *Journal of the American Medical Association*.

Clinical results in some 1,200 patients treated with sodium propionate appear to be as good as those obtained in acute eye infections by treatment with any of the newer antibiotic drugs, according to Dr. Theodore.

Sodium propionate appears to be a useful supplement to the antibiotic drugs and sulfa drugs, which in some eye infections often prove to be of little permanent value because of the development of bacterial resistance and drug sensitivity, he indicates. Results from use of sodium propionate in these conditions are gratifying.

The fact that sensitivity to the drug is rare makes it an especially valuable agent in infections in allergic persons or in cases in which drug sensitivity already has occurred.



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Postgraduate Review

THROMBOEMBOLIC DISEASE

ROBERT ELMAN, M.D.,
ST. LOUIS

THROMBOEMBOLIC DISEASE may be compared with the sword of Damocles poised over the head of the postoperative or posttraumatic patient ready to strike a fatal blow in the form of a massive pulmonary embolus sometimes within a few seconds or minutes and often during an otherwise apparently uneventful convalescence. Such an accident is fortunately rare. However, less severe episodes are more common and offer more opportunity for therapeutic efforts. More important is the fact that in all such episodes intravascular thrombosis, starting almost always in the deep veins of the foot and leg, precedes the embolism, thus offering prophylactic opportunities. Because of the established causal connection between intravascular clotting and embolism, the term thromboembolic disease is now generally used to cover the entire condition. It should be mentioned that thromboembolic disease is not limited to surgical patients, but is seen also in those suffering from medical conditions in which surgery is not even indicated. In the following dsicussion the underlying mechanism of intravascular clotting will be scrutinized with the primary objective of preventing its development as far as possible, thus removing the sword of Damocles entirely. Where this is not accomplished, the secondary therapeutic objective will be the prevention of embolism, thus sheathing the sword and robbing it of its fatal propensity.

GENERAL CONSIDERATIONS

Historical Survey.—Thrombosis or the intravascular clotting of blood has been known since the time of Hippocrates. Not until the observations of Virchow one hundred years ago, however, did the possibility occur to anyone that a portion of the clot could break off and be carried elsewhere by the blood stream even though 200 years had elapsed since Harvey described the circulation of the blood. It is to Virchow, moreover, that is owed the term embolism, the mechanism of which he described in considerable detail. As far as its relation to the history of surgery is concerned, septic thrombosis and purulent pulmonary infarcts were common in the pre-Listerian era; however, no mention was made in that period of the present type of nonseptic thrombosis and fatal pulmonary embolism. According to the excellent historical review of Matas,[32] the terms postoperative thrombosis and embolism were unknown in 1880. Only with the extension of surgery into the various body cavities, especially of the abdomen twenty-five years later, did this dreaded complication begin to attract the attention of surgeons. Whereas from 1889 to 1899, 6,000 operations were preformed at the Mayo clinic without a single death from pulmonary embolism, after 1900 fatal embolism was observed once in 1,232 operations.[32] Matas explained this not only on the basis of increased number of abdominal explorations, but because "the surgery of the abdomen rose from the pelvis to the diaphragm where apparently most of the thrombogenic organs reside." This idea is, however, not borne out by later statistics, which show that the likelihood of pulmonary embolism is just as great following hysterectomy as gastrectomy. A more likely explanation is the increase in the number of longer and more extensive procedures, a tendency which has increased during the last decades.

A specific type of thrombosis, thrombophlebitis femoris, has long been known as a postoperative, posttraumatic and postpartum complication, and indeed was said[32] to have an incidence after operation of as high as 1 per cent. However, this condition did not lead to pulmonary embolism and thus rarely if ever led to a fatality, even though the symptoms were pronounced and sometimes locally disabling. It was W. W. Welch who emphasized the fact that venous thrombosis took two forms, the white thrombus which was firmly attached to the vein well and did not tend to break off, as compared with the soft red thrombus which did, and which indeed was the kind usually found in the pulmonary vessels when a massive embolism had occurred. The German surgeon Payr[45] as early as 1930 recognized that this latter type of thrombus originated from the foot and leg veins. He even described in great detail plantar tenderness, edema of the ankle and pain in the foot and calf on dorsiflexion of the foot as an early clinical manifestation, preceding the pulmonary embolism by from three to six days. Without knowing of these observations, Homans[21] in 1934 clearly recognized also that it was the soft red thrombus which developed in the deep veins of the lower leg and foot which led to serious and often fatal embolism, in contrast to the relatively harmless nature of the common type of thrombophlebitis femoris so frequently described. Homans clearly differentiated further characteristics of these two types of thrombosis; the latter represented an active exudative process involving the wall of the veins and often of the adjacent artery located usually high in the leg about the level of the iliac vessels, and associated with rather pronounced systems of swelling and pain. By contrast, the former type produced far fewer clinical signs and was located in the foot and lower leg rather than in the pelvis.

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A chapter in a forthcoming book on "SURGICAL CARE" to be published by Appleton-Century-Crofts, Inc.

In an excellent review of the subject in 1939 Ochsner and DeBakey[44] gave a simpler term to the deep thrombosis by calling it phlebothrombosis, in contrast to the traditional type of thrombophlebitis femoris. These two terms will be used throughout this chapter. One of the first pathologists to dissect out the leg veins at autopsy was Neumann,[41] who in 1938 found thrombi in the legs in 100 out of 165 cases examined. Significantly, the plantar veins showed a preponderance of thrombi, in 71 per cent of the cases, although the rest of the veins in the lower legs frequently were involved along with the plantar veins.

The two types of thrombosis just described do not, however, exhaust the subject of intravascular clotting inasmuch as this phenomenon occurs not only in the veins of the legs, but the veins of the mesentery and elsewhere, and also in the arteries as well as in the heart itself. Moreover, embolism of various kinds may occur from any of these other sites as, for example, an arterial embolism occluding the arterial supply to a lower extremity or the brain. These will be discussed separately.

Beginning about 1935, knowledge of postoperative embolic disease was advanced greatly by the work of several Swedish and Canadian investigators, who were probably the first to use purified heparin, which in turn was made possible by the chemical investigations of Charles and Scott[9] and of Jorpes.[27] The extensive work of Jorpes[28] clarified many of the problems involved in the purification of heparin, and soon led to the large scale production of a safe product with which extensive therapeutic application was made possible. The reader is referred to the classic monograph by Jorpes[28] and to a thorough review based upon a five year study in the treatment of thromboembolic disease in the Swedish hospitals during the years 1940 to 1945 by Zilliacus.[60]

Thrombophilia of Trauma.—Although thromboembolic phenomena occur almost as frequently in medical as in surgical diseases, there has been accumulated evidence that one of the systemic effects of injury is an increase in the coagulation of the blood, thus leading to a greater likelihood of intravascular thrombosis and with it embolism. This tendency has been called the thrombophilia of trauma and was discussed at length in the classical paper on postoperative thrombosis and pulmonary embolism by Matas[32] in 1932. Many studies were made before this date with the objective of demonstrating such a phenomenon in quantitative terms. Using a variety of methods, an increase in the coagulability of the blood was apparently demonstrated. Increases in the fibrinogen content of the blood were also described. Changes in the sedimentation rate were reported. The difficulty with most of these studies is the inevitable problem of quantitative determination.

One of the basic difficulties in the measurement of the normal coagulation of the blood is the fact that clotting occurs only when two separate reactions have taken place. These are, first, the change from prothrombin to thrombin and, second, the combination between thrombin and fibrinogen. Each of these reactions requires time, and the speed of each may vary. Moreover, the variations of each reaction depend upon different factors; the rate of conversion of prothrombin to thrombin is influenced by the quantity of thromboplastic substance, and the availability of free calcium, whereas the rate of reaction between thrombin and fibrinogen to form fibrin is influenced by the amount of accelerator globulin substance present.[57] In general, therefore, methods which aim to measure the speed of two or more variable reactions are necessarily open to considerable and variable error. To make matters more complicated, the end point which determine the presence of coagulation, i.e., the precipitation of fibrin, is not always easy to determine. A discussion of these problems will be found in the text of Quick[48] and in a recent report by Alexander, DeVries and Goldstein.[2] It must be emphasized that this difficulty also applies to the measurement of decreased coagulability as a guide to anticoagulant therapy which will be described later.

The most recent study of postoperative thrombophilia in terms of prothrombin activity was that of Sandrock and Mahoney[55] who reported that 20 per cent of 382 patients showed definite hyperprothrombinemia before signs of deep thrombosis could be elicited. However, McClure and his coworkers[33] repeated these observations using exactly the same methods, and were unable to confirm the findings. This was also the experience of Fowler,[15] who studied twenty-nine postoperative patients with six different tests of blood coagulability; twenty-six of the twenty-nine cases showed an acceleration by one test or another, but there was no correlation between them. Moreover, the one patient who developed definite thrombophlebitis had shown a negative result with all six tests! It is probable that with more modern refinements the coagulability of the blood, or at least one of the constituents of the blood, whose increase is known to lead to an increased coagulability, may be developed and thus permit exact measurements during and after operation. Such a method seems likely on the basis of the recent study of Ware and Seegers.[56]

Accurate methods for measuring the coagulability of the blood are of obvious therapeutic importance for, by detecting thrombosis, prevention of embolism can be achieved readily. It would seem clear that on the basis of clinical observations alone there actually is an increased tendency toward intravascular clotting following operation, injury or childbirth. Mention also should be made of the recent observations on "sludging" of the

blood, a direct visual phenomenon which has been shown to follow various infections and trauma, and may indeed be an important manifestation of this thrombophilic tendency. Another clinical observation which may lead to useful knowledge in regard to the coagulation of the blood is that carcinoma of the body of the pancreas frequently is associated with extensive thrombosis, apparently due to some alteration in the antitryptic activity of the blood.

Mention should be made of the supposed influence of antibiotics on blood clotting mechanism. Moldavsky and his coworkers[35] in 1945 found that patients receiving penicillin showed an increased blood clotting tendency. Macht[31] presented confirmatory evidence that both penicillin and streptomycin can increase blood coagulability; later aureomycin was shown to have the same effect. Others[12, 30] have not confirmed these findings. On the other hand, Rabinovitch and Pines,[50] in an experimental study of venous thrombosis, found that heparin alone seemed ineffective in preventing or dissolving the thrombus whereas the combined use of heparin and penicillin was definitely so. Further study is obviously indicated.

Incidence of Thromboembolic disease.—The exact incidence of postoperative phlebothrombosis is uncertain because of the difficulty in its clinical diagnosis. This is in striking contrast to the clear-cut clinical picture produced by thrombophlebitis femoris. That phlebothrombosis of the leg veins is nevertheless frequent at least in fatal cases is shown by its high incidence when the leg veins are dissected out at autopsy.[26, 41]

The incidence of pulmonary embolism is easier to determine even at the bedside because its clinical manifestations are more definite and often striking. However, they may be confused with other pulmonary complications; even radiologic examination is sometimes inconclusive. Fatal pulmonary embolism is diagnosed readily because it usually provides clear-cut autopsy findings. Occasionally, however, patients may die with signs apparently characteristic of pulmonary embolism without any lesion being found at postmortem. In the typical case, however, the long thrombus in the pulmonary vessels is striking and mute evidence of the tragedy which has just occurred. Thus the incidence of fatal pulmonary embolism based upon positive findings at autopsy has a real value.

Considerable variation even in the incidence of fatal pulmonary embolism is reported from various clinics and from year to year; part of the differences is actual and part may be due to uncertainty of diagnosis in those not based on positive autopsy findings. In general, one may say that on the average about two patients die of pulmonary embolism following each 1,000 operations, although the range of published figures varies widely. For example, Lam and Hooker[29] in more than 118,000 operations found seventy-eight cases of fatal pulmonary embolism, or one in about every 1,500 patients operated upon, whereas Henderson[19] noted 131 in nearly 50,000 operations, an incidence nearly four times greater. On the other hand, Collins[10] found only twenty-four in more than 16,000 cases or less than one per 1,000, whereas Adams[1] reported among 9,000 operations over the course of four years in the 1940's that 170 patients had recognized thromboembolic disease, and that during the same period there were forty deaths from pulmonary embolism or more than four per thousand. A high incidence was reported also by Erskine and Shires,[13] who analyzed 4,596 abdominal operations between the years 1930 and 1936, during which time there were nineteen deaths from pulmonary embolism, also more than four per every 1,000 operations.

A much higher incidence will obviously be found in series in which surgeons exclude minor procedures and include only the more serious cases. This explains the high figure of Powers,[47] who in a small series of 1,519 major operations found there were eleven deaths from embolism or 7 per 1,000. Much more striking is the experience of Murray and Best,[40] who state that fatal pulmonary embolism occurred in 2.2 per cent of gastrectomies, 3 per cent of colon resections, 6 per cent of abdominoperineal resections, 4.3 per cent of fractures of the femur, and 7.5 per cent of prostatectomies! On the other hand, there have been a number of reports of many thousands of operations carried out with no complications of this kind whatever. The international incidence of postoperative embolism and thrombosis has been reviewed thoroughly by Matas[32] in 1932.

Certain other factors have been observed in these statistical studies. One factor is the correlation of postoperative pulmonary embolism with the type of trauma or with the kind of operation carried out. For example, one of the most likely injuries to be followed by thrombosis and pulmonary embolism is injury to the lower extremity, in which Bauer[6] found an incidence ten times greater than in other cases. Lam and Hooker[29] found gastric and prostate operations were most likely to be followed by fatal pulmonary embolism. Of greater significance is the age of the patient. For example, Lam and Hooker found that all but eleven of their seventy-eight fatal cases were 40 years of age or over. Barker et al[5] reported that patients more than 50 years of age had a threefold higher incidence in the case of gastrointestinal operations and a twofold increase in the case of abdominal hysterectomy. Many other factors have been mentioned presumably of significance in influencing the incidence of fatal pulmonary embolism, although little or no statistical confirmation is available. For example, thromboembolic disease is said to be more frequent in colder climates and in the winter months. Spinal anesthesia is said to

favor this condition as compared with inhalation anesthesia. Further study is needed before a definite answer can be given.

It should be pointed out that fatal pulmonary embolism in most statistical reports does not rank high in the causes of postoperative fatalities. While the figures vary, if one assumes an overall mortality of 3 per cent and embolic deaths as 0.1 per cent, the proportion is only 1 out of 30 or about 3 per cent of the total mortality. On the other hand, Powers[47] who reported a high incidence of deaths due to embolism (eleven in 1,519 operations) noted only seventeen deaths from other causes; thus, embolic deaths accounted for 40 per cent of the total postoperative mortality in this series.

Mechanism of Thrombosis and Embolism.—The mechanism of embolism is fairly obvious once a detachable thrombus is formed. Such a detachment rarely if ever occurs in thrombophlebitis femoris since the clot is firmly fixed to the wall of the vein. The embolism which occurs following phlebothrombosis is easy to understand since this lesion is a loose, floating thrombus waving in the flow of blood, gradually becoming larger and larger, only to be broken off and carried to the lungs as a massive embolus. The problem of thromboembolic disease is largely concerned with the mechanism by which this floating thrombus begins and propagates.

What are the changes which lead to the start of such a thrombus and what are the factors which permit it to grow? A great deal has been written about intravascular clotting, but the final answer must await more exact biochemical knowledge of the phenomenon of coagulation itself. What is really needed is an accurate knowledge of a probable trigger mechanism which precipitates the final reaction in the trend of events which leads to intravascular clotting. In the meantime, however, it seems likely that the following three traditional factors which have long been known are still important in the instigation of thrombosis.

(1). *Injury to the endothelium* of the veins, by releasing thrombokinase, acts as a focus for the beginning of the clot. Such an injury is obvious in trauma to the leg itself and may explain why injuries to the lower extremities are so much more prone to thrombosis. In other operations, trauma to leg veins may occur readily because of prolonged pressure upon the calf muscles by the patient lying supine on a hard operating table. Restraints of various kinds applied to the leg also may produce such trauma.

(2). Slowing of the venous flow, by promoting stasis of blood, leads to the development of a venous clot. Such a decrease in blood flow is inevitable in any patient who is immobile at rest in bed and whose pelvis is kept at a lower level than the heart, thus permitting stasis of blood returning from the lower extremities. Postoperative measures of the circulation time have actually shown a slowing of blood flow from the foot to the carotid.[55] During the last war thrombosis of the lower leg was so common in England among individuals who were forced to maintain a fixed position in crowded underground bomb shelters that the term "shelter leg" was applied to this condition; many of them suffered fatal pulmunory embolism. Soldiers confined in fox holes or fixed in one position in crowded airplanes for long intervals were noted to develop phlebothrombosis.

(3). An *increased coagulability of the blood,* the so-called thrombophilia of trauma, has already been discussed.

CLINICAL MANIFESTATIONS

The clinical manifestations of thrombophlebitis femoris are striking and will be described separately. By contrast, phlebothrombosis tends to produce relatively few or slight signs and symptoms. However, definitely detectable manifestations may be produced and in a few cases may be quite pronounced.

Phlebothrombosis.—The important bedside manifestations include pain and tenderness in the leg, particularly in the plantar surface of the foot and the calf, sometimes only when dorsiflexion of the foot is produced. Edema may also be seen, usually confined to the ankle. Systemic manifestations include unexplained increases in fever and, when tested, a more rapid sedimentation rate.

It is notable that many surgeons have described the sudden tragedy of fatal pulmonary embolism in patients who at no time previously had apparently shown any evidence of phlebothrombosis. Unfortunately, in many cases, the neglect of the surgeon to look for local signs in the legs is admittedly responsible for failure to find clinical manifestations of this complication. It should be emphasized, therefore, that more careful and frequent bedside examinations should be made of the leg and foot in order to detect there rather mild evidences of deep thrombosis. On the other hand, one must at the same time guard against overenthusiastic examinations, for when one looks too intently for certain signs, one is likely to find them whether they are actually present or not. A homely example is the well known saying of sentries on outpost duty in World War II "If you watch a tree long enough it will move!"

The following experience illustrates how important it is to examine the legs repeatedly until the patient is fully up and about.

Case 50. The patient was a 65 year old female who was operated upon and a right colectomy carried out for carcinoma of the transverse colon. During the operation there was a slight amount of transient hypotension which at the time was presumably of no clinical significance, though in view of subsequent events may have been important. After operation the

patient had no untoward symptoms, no increase in pulse rate or fever. She was kept at bed rest for one week after operation with orders for leg exercises each day; examination of the legs each day revealed no changes. On the eighth postoperative day the patient was allowed to dangle her legs over the edge of the bed and, on the ninth postoperative day, she was up out of bed and walked twice. However, the legs were not examined on these two days since the danger of phlebothrombosis was assumed to be over. On the tenth postoperative day, while in bed, the patient complained of sudden dyspnea, cyanosis and died within twenty minutes. Examination of the left calf immediately after death showed definite swelling; by measurement it was 1½ times greater in diameter than the right calf. There was definite edema of the ankle. Postmortem examination revealed a large pulmonary embolus, presumably originating from a leg vein, although the vessels of the extremities were not dissected.

Laboratory Tests.—The possibility of detecting phlebothrombosis by a laboratory test showing an increased coagulability of the blood has already been discussed and may be available and accurate within the near future. Another laboratory procedure is the demonstration of thrombi by radiography of the vein following the injection of radio-opaque materials. The use of venograms to diagnose phlebothrombosis has been described extensively, particularly by Bauer.[7] However, this procedure presents many difficulties—the necessary movements are not without danger, it is time-consuming and somewhat expensive and the results are occasionally difficult to interpret. Unless one develops the technic after considerable study, its routine use is probably not destined to receive wide acceptance.

Pulmonary Embolism.—Difficult as it may be to diagnose deep thrombosis of the legs, the clinical manifestations produced by pulmonary embolism are by contrast clear and unmistakable. In the most dramatic form, the patient, usually convalescing without event, will suddenly be stricken by upper abdominal or thoracic pain, difficulty in breathing, surgical shock and often succumbs within a few minutes. For example, in the seventy-eight fatal pulmonary embolisms studied by Lam and Hooker[29] all but nine died within one hour, and 50 per cent of them died within ten minutes. The following is a typical example.

Case 51. The patient was a 77 year old woman who was operated on for intestinal obstruction. The cause was found to be an adhesion, but the involved bowel had to be resected, followed by ileoileostomy. The anesthesia was continuous spinal, with a total of 225 milligrams of novocain. The blood pressure fell early, but was sustained throughout the procedure at around 100 mm. of mercury systolic. Three days after operation bowel sounds were heard on auscultation of the abdomen, and on the sixth postoperative day the patient had her first bowel movement and was started on a full diet. The legs were examined every day after operation and no abnormality found at any time. The patient seemed to be somewhat confused mentally throughout the postoperative period, and on the sixth postoperative day she died suddenly in bed during the night. At postmortem a pulmonary embolism was found as the cause of death with definite evidences that the left femoral vein was the source.

In many instances these symptoms are not followed by prompt death, but persist with moderately severe cyanosis, circulatory impairment and respiratory difficulties which may last for several hours as, for example, in the following case.

Case 52. The patient was a 49 year old male who was operated on four days after admission; the diagnosis of carcinoma of the cecum was confirmed and a hemicolectomy carried out followed by an anastomosis between the terminal ileum and the transverse colon. The postoperative course was relatively uneventful with the exception of a moderate degree of fever which reached a high point of 38.8 C. (102 F.) on the second postoperative day. The fever was sustained, never falling below 37.6 C. (99.8 F.) even though his preoperative temperature had never risen above this low point. On the first postoperative day the patient complained of pain in his right leg, although examination showed normal findings. On the fourth postoperative day he complained of sudden epigastric pain and later of dyspnea. Electrocardiogram showed slight signs suggestive of embolism and the patient was digitalized and put in an oxygen tent. But his condition grew worse with peripheral circulatory failure, and he expired fourteen hours after the onset, the temperature rising to 41.4 C. (106.5 F.) just before death. At postmortem there was a massive pulmonary embolism which could be uncurled and fitted precisely into the left femoral vein.

Comment.—This patient might have been saved had ligation of both veins been carried out at the time when pain was complained of in the right leg, even though there was no definite signs of thrombosis. Or he might have been given anticoagulant therapy (had it been available at that time), particularly in view of the fever. On the other hand, even if this treatment had not been carried out, his survival for fourteen hours after the acute episode should have allowed sufficient time for the administration of intravenous heparin, which at the time was not in general use.

From the bedside point of view, although this patient represents a clear-cut example of pulmonary embolism, because of the epigastric pain there was some question in the minds of several observers as to the source of his acute symptoms, i.e., whether it originated in a lesion below or above the diaphram. It is indeed not unusual for pulmonary embolism to start with symptoms suggestive of a gastrointestinal lesion.

In a few cases severe manifestations may continue for up to twenty-four hours and then gradually abate, only to recur as in Case 54. In the less severe, nonfatal cases the patient will complain merely of epigastric pain and cough with or without the expectoration of blood-stained sputum Many cases are mistaken for an acute gastric disturbance or for other upper abdominal com-

plications. X-ray examination of the lungs may reveal a triangular area indicating the location of the embolism as an infarct, although too often the radiograph is either negative or shows but little change. Moreover, in a few cases of pulmonary embolism, the manifestations may be mistaken for postoperative atelectasis or pneumonia; even chest films may fail to reveal the true nature of the pulmonary lesion. In some obscure cases, examination of the blood will reveal a transient increase in the icteric index which in the absence of hepatic disease may be helpful in establishing the diagnosis.

THERAPY OF THROMBOEMBOLIC DISEASE

The therapeutic problem presented by thromboembolic disease is the elimination of fatalities due to massive pulmonary embolism. To do so most effectively, the logical order is as follows: (1) prevention of phlebothrombosis, (2) treatment of phlebothrombosis when it occurs in order to prevent pulmonary embolism, and (3) treatment of pulmonary embolism when it occurs in spite of the first two measures. This division of therapy will be used in the following discussion. Also shown is an accompanying chart in which therapy is classified as it applies first to thrombosis and embolism, and second to prophylaxis and active measures.

Table 1. *Therapy for Thromboembolic Disease.*

	Prophylaxis	Active
Phlebothrombosis	1. Avoidance of trauma to vessels 2. Promotion of venous flow (exercise, position) 3. Anticoagulant Therapy	1. Anticoagulant Therapy 2. Vein ligation and thrombectomy
Embolism	1. Vein ligation 2. Anticoagulant Therapy 3. Rest in bed	1. Anticoagulant Therapy 2. Antispasmotic drugs. 3. Vein ligation

Prevention of Phlebothrombosis.—Perhaps the simplest methods are the physical measures already mentioned elsewhere. These include first of all care to avoid trauma to the leg veins on hard operating tables or with restraints which may constrict the peripheral veins of the leg. More extensively used have been physical measures designed to increase the rate of blood flow from the lower extremities during the postoperative period. This is not merely a matter of early termination of bed rest. Indeed, merely getting a patient out of bed and having him sit in a chair for several hours promotes venous stasis in the leg, and this may actually lead to thrombosis. The important part of early termination of bed rest is active movement of the lower extremities which, of course, occurs if the patient is made to walk after arising from bed. But this same effect may be achieved while the patient is in the horizontal position by instituting definite and frequent leg exercises. The importance of leg and especially foot exercises was emphasized in 1930 in the report already mentioned by the German surgeon Payr, who described a wood bolster placed at the foot of the patient's bed against which he pressed with the balls of his feet in order to exercise the ankles and thus promote return of blood from the foot (see fig. 1). More detailed and extensive bed exercises were described by Pool[46] as early as 1913.

The therapeutic value of exercise and early ambulation in the prevention of thromboembolic disease is real but difficult to put into exact terms, as emphasized by Matas[32] and by Newberger,[42] both of whom reviewed the literature. Obviously an accurate assessment must depend on what is meant by exercise and early ambulation. Too often these terms are used to describe a half-hearted, poorly executed or uncontrolled program in which the real objective is not achieved in every case. Nevertheless, the following experiences are mentioned because the positive results obtained seemed convincing, although not always striking.

Excellent results were reported by Gamble,[16] who in 1934 described an instrument called the "bed cycle" which was used in more than 52,000 major operations from 1933 to 1948. Whereas previously one fatal pulmonary embolism had been observed in each 1,500 cases, since the use of the "bed cycle" only one fatality occurred from pulmonary embolism in the 52,000 cases. The results in most other reports are not nearly so striking.[47] Thus Erskin and Shires[13] instituted in 1937 a series of postoperative exercises and massage including breathing exercises; instructions were given the day before operation and carried out systematically after operation. In the following six years, in 3,436 patients so treated there were seven deaths from pulmonary embolism as compared with seventeen

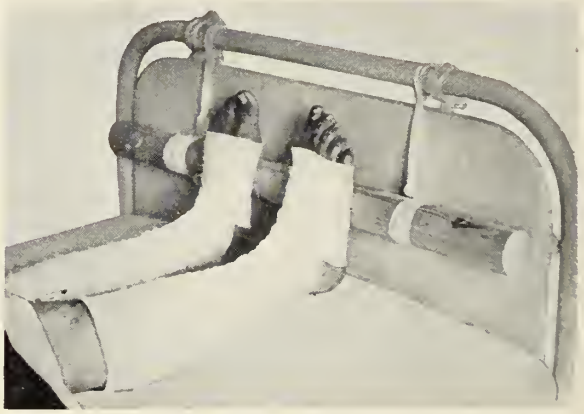


Fig. 1. A wooden bolster at the foot of the bed was recommended in 1930 to permit foot exercises for the purpose of preventing deep thrombosis of the feet and legs and thus reduce the incidence of pulmonary embolism. (From Payr.[45])

deaths in 4,596 cases in the six preceding years. Adams[1] in 1936 reported that there was a diminution of 50 per cent in the incidence of thromboembolic phenomena after the institution of foot exercises with preoperative instruction given systematically to all patients. Mortens[36] studied 10,000 postoperative patients in the Riggs Hospital in Copenhagen, using the same number in another ward as controls. The ones receiving medical gymnastics in bed and ambulated from the fourth day showed a 50 per cent reduction in thrombosis. Hermansson[20] also reported a 50 per cent reduction in thromboembolic disease by the use of exercise after gynecologic operations. Powers[47] observed the same difference in regard to early ambulation, i.e., double the incidence of fatal pulmonary embolism in patients kept in bed twelve days as compared with those ambulated within the first four days.

The beneficial influence of exercise on thromboembolic disease obviously will be altered by the possibility that many surgical patients may be harboring a thrombus in the leg veins even before operation. In such a case embolism immediately afterwards may indeed be precipitated by exercise. Thus in evaluating the results of exercise and ambulation, this factor must be considered and the study limited to those already fully active and ambulatory at the time of operation.

Other physical methods such as massage of the lower extremities and encasing the legs with an elastic bandage, have also been described. The evidence which indicates their value or lack of value is difficult to evaluate. It is hoped that controlled observations over many years may be carried out in order to determine accurately whether these simple methods have any actual therapeutic value.

An obvious prophylactic measure which applies to phlebothrombosis as it has to other complications is the need for avoiding significant hypotension during and after operation. It is obvious that decreased venous flow eventually will follow decreased arterial flow and thus predispose to thrombosis.

The routine use of anticoagulant therapy for the prevention of phlebothrombosis has been stimulated greatly during the last ten to fifteen years; the evidence for the value of this procedure and the methods for its use will be described under a separate heading.

Treatment of Phlebothrombosis.—The objective of therapy is largely to prevent pulmonary embolism inasmuch as phlebothrombosis itself seldom produces any disability or serious symptoms once the patient is well.

The difficulties in the diagnosis of phlebothrombosis have already been mentioned. It is probable that with more careful and repeated examination of the legs, this condition can be detected more frequently than is commonly the case. Once the condition is definitely established, active therapy is urgently required, which includes either vein ligation or anticoagulant therapy, or occasionally a combination of both.

Vein Ligation.—Ligation of the femoral vein, either above the union of the deep and superficial branches or of the superficial branch itself, was probably first described and recommended by Homans[12] in 1934. However, it did not receive a wide acceptance until fairly recently when many reports have appeared indicating its value in a large number of cases in the prevention of pulmonary embolism. Ligation of the femoral vein not only prevents the carrying of the thrombus as an embolus to the lung, but also permits evacuation of the clot itself. This is particularly important when the proximal end of the clot has extended up into the common femoral vein. Under such conditions it is sometimes possible to remove the proximal end of the clot through an opening in the superficial vein, and thus achieve the desired result without the necessity of exposing and ligating the larger vessel. The technic and indication for ligation of the femoral vein have been well described by Allen, Linton and Donaldson.[3] Homans[22] discusses the indications and value of vein ligation, particularly in regard to the therapeutic conflict between this method of therapy and the use of anticoagulant measures.[23]

The following case is an example of phlebothrombosis which was found before operation, as demonstrated by exposure, and treated by ligation of the femoral vein.

Case 53. This was a 64 year old male admitted to the Barnes Hospital on July 12, 1948, complaining of abdominal pain of three and one-half months duration. A diagnosis of carcinoma of the pancreas with diabetes was made. He had been at rest in bed for some weeks. Several days before he was scheduled for operation, swelling, pain and tenderness of the right calf was observed with slight tenderness along the superficial femoral vein of the right thigh. A bilateral operation was carried out for vein ligation; a definite clot was found and sucked out from the right femoral vein. Exploration of the abdomen two days later revealed an inoperable carcinoma of the body of the pancreas which was confirmed by the removal of a biopsy for microscopic examination. There were no postoperative embolic sequelae, the legs were not painful, the swelling was minimal and the patient was discharged unchanged.

Exposure of the femoral vein at operation has the advantage of establishing the diagnosis when a thrombosis can be definitely seen. It also has the advantage, as mentioned above, of removing a thrombus which extends up into the iliac vessel. On the other hand, it is a common experience that opening and aspiration of the femoral vein often fail to reveal the existence of a thrombus. This does not mean, of course, that there is no

thrombus, inasmuch as the thrombus may be quite distal. Nevertheless, ligation of a peripheral vein must not be considered lightly. While the disability which occurs is often transient, it must be counted as a definite disadvantage to this method of therapy, particularly since other methods may be less hazardous, and certainly would leave no permanent anatomical changes in the vessels.

Doubt as to the therapeutic value of femoral vein ligation emerges from a statistical study of Roe and Goldthwait[52] of the postmortem incidence of fatal pulmonary embolism. Whereas in two previous five year control periods (1931-1935 and 1936-1940), thirty-eight and forty-one deaths respectively due to pulmonary embolism were found at autopsy, sixty-eight deaths were noted during the years 1943-1947, a period in which nearly 2,000 prophylactic and therapeutic vein ligations were carried out. Expressed as a portion of the total autopsies, 2.1 per cent and 3.6 per cent of the cases showed fatal pulmonary embolism during two control periods as compared with 4.4 per cent during the period in which vein ligation was used. This, of course does not mean that the vein ligation increased the incidence of embolism for there are many other factors involved in a statistical study. For example, the average age of the patients in the 1943-1947 period was 8 years greater. Nevertheless, the study offers no evidence that vein ligation exerted any beneficial influence on the evidence of fatal pulmonary embolism in the hospital.

Other Preventive Measures.—It is obvious that any instigating factor which tends to promote detachment of the clot must be eliminated if possible. Mention should be made of the danger of movement of the legs in patients harboring a free-floating thrombus of the deep veins. Evidence that this actually occurs has been cited by Newberger.[42] Rest in bed with complete immobility is required unless, of course, anticoagulant therapy or ligation has been employed. Other factors which tend to convert a thrombus to an embolism have been suggested by Wright.[59] These include physical examination of the chest in which patients are instructed to take deep inspirations which increase negative thoracic pressure and suddenly increase the speed of blood flow from the lower extremities. Violent coughing and straining at stool also have been observed to precede fatal embolism and therefore should be avoided, the former by adequate sedation in selected cases, the latter by limiting the use of enemas.

Treatment of Pulmonary Embolism.—Although many cases of pulmonary embolism lead to a fatal outcome so rapidly that there is no time for therapy, others develop more slowly and offer considerable opportunity for treatment.

Once the diagnosis of a pulmonary embolism has been made, prompt and emergency therapy must be carried out at once. A delay of even an hour or two may make the difference between a recovery and a fatality. First of all, the patient must be treated with antispasmodics and pain-relieving drugs. It is undoubtedly true that the sudden pain produced by the embolism instigates vasospasm in the pulmonary vessels which, to a considerable extent, aggravates the pulmonary obstruction. Thus the use of intravenous morphine, papaverine, or pantopon as well as vasodilating drugs, such as inhalation of amyl nitrate, is definitely indicated. At the same time, oxygen inhalation therapy may be employed in the severe cases in order to help control anoxia, which is usually present. Just as urgent is the immediate use of anticoagulant therapy, and this, of course, means the intravenous injection of heparin in sufficient doses to promptly lower the clotting power of the blood. The beneficial effect of heparin is based not only upon the fact that it will prevent further propagation of the clot in the pulmonary vessels, but also that it may, by dissolving fibrin, increase the possibility of collateral circulation around the embolus. It is probable that many patients with an acute and otherwise fatal pulmonary embolus may be carried through the episode and recover.[37]

Once the attack of pulmonary embolism is over and indeed while it is in progress, the question of vein ligation always comes up. In actual practice vein ligation is indicated only with repeated attacks of pulmonary embolism despite the use of methods just mentioned. After two or three of such attacks, it is likely that vein ligation should be carried out. This may require the occlusion of the iliac or even the inferior vena cava, depending upon the source of the emboli. Those who are enthusiastic about vein ligation would not wait for repeated attacks, but ligate the vein along with the other methods just mentioned shortly after the first acute episode. Time alone and an accumulation of well controlled clinical observations can only answer this disputed question.

The actual exposure and evacuation of the pulmonary embolus have been described, especially in the older literature. The operation is called pulmonary embolectomy and usually is associated with the name of Trendelenburg. While success was achieved in a few cases, the procedure is no longer recommended, doubtless because of its risk and difficulty.

Anticoagulant Therapy.—Anticoagulant therapy is used in thromboembolic disease on one or more of the three following occasions: (1) shortly after operation or trauma when it is important to prevent thrombosis, (2) as soon as clinical signs of phlebothrombosis are present in the lower extremity in order to prevent pulmonary embolism, (3) as soon as pulmonary embolism is evident even without a recognizable source in order to reduce

mortality. Two anticoagulant drugs are now available, heparin and dicumarol, each or both of which may be used to slow the coagulation of the blood. An excellent review of methods of anticoagulant therapy is that of Allen.[4]

Heparin has had an interesting history. In 1916 McLean,[34] working in Howell's laboratory, found that certain tissue extracts retarded the coagulation of the blood. Two years later, Howell and Holt[25] gave it the name of heparin, because it was present most abundantly in the liver. Its importance in the study of the physiology of blood coagulation was obvious. Extensive investigations followed, but the active material was difficult to purify and its chemical nature was uncertain. Its potential therapeutic value in the treatment of postoperative embolism was recognized also by McClure[33] who shortly after McLean's report in 1916 used some of the material in patients and later wrote "the reaction, however, due to impurities, were so terrible in three cases that we never even reported it." Vigorous efforts to purify the active material were made by workers, notably Charles and Scott[9] in Toronto, Canada, and Jorpes[27] in Stockholm, Sweden.

The present extensive use of heparin really dates from 1935, when Jorpes,[27] a Finnish physician working in Stockholm, published his first study on the chemistry of heparin. His colleagues in Sweden were quick to use the purified preparation he made, for in 1936 two reports appeared by Hedenius and Wilander,[18] and by Crafoord,[11] the latter describing the use of heparin in the prevention of postoperative thrombosis. Shortly after this (1938) Murray and Best[40] described the clinical use of the Canadian preparation in 335 postoperative cases. Since the supply of heparin at first was scarce, costly and had to be used with care in order to avoid untoward results, it was really fortunate that the first clinical studies were limited to a few careful observers. Based on the extensive experience of our Scandanavian and Canadian colleagues, surgeons and others here and elsewhere were eventually enabled to employ the purified material with almost immediate success and without the frequent "trial and error" period which so often precedes final establishment of recommended therapeutic procedures.

Heparin is probably of variable composition and its chemical identity is only partly known despite the fact that it has been prepared as a barium and sodium salt. Jorpes[28] doubts whether heparin can ever be crystallized or obtained in a pure form since it consists of a polysaccharide with many sulfuric acid groups. Heparin acts directly on the blood first by preventing, with plasma, the conversion of prothrombin to thrombin; second, by forming a strong antithrombin with serum albumin and, third, by inhibiting the conversion of platelets to thromboplastin; finally, it is supposed to possess the useful property of dissolving fibrin in non-organized clots. Heparin acts immediately when given by intravenous injection and has practically no toxic side effects. Moreover, its effect can be counteracted promptly by the intravenous use of from 5 to 10 cc. of protamine sulfate (1 to 2 per cent) should dangerous bleeding occur. The major disadvantage of heparin is its high cost; a second and minor disadvantage is the fact that it must be administered either by constant intravenous drip or by injections at frequent intervals (or subcutaneously). It cannot be given by mouth.

Dicumarol came into use as an anticoagulant through a curious series of events. In 1921 a new hemorrhagic disease of cattle suddenly appeared in North Dakota and parts of Ontario. The cause was soon (1924) discovered by Schofield[54] to be a toxic substance in spoiled sweet clover ingested by the afflicted cattle. A series of fruitful investigations was then carried out by Campbell and Link.[8] The nature of the toxic substance was identified as 3,3-methylene-bis-(4 hydroxycoumarin) now known as dicumarol.

Dicumarol has the practical advantages over heparin of being less expensive and more convenient to use since it is effective for a much longer period of time and can be given by mouth. Indeed, its therapeutic effects can be maintained by a single daily dose. On the other hand, it is by this same virtue less capable of accurate and rapid control, and hence is not as safe as heparin. Moreover, it lacks the rapid action of heparin. The effect of dicumarol can be counteracted by the administration of vitamin K and blood transfusions. Dicumarol acts by preventing the formation of prothrombin by the liver; it is thus a hepatic toxin in contrast to heparin, which is a normal constituent of the blood and body tissues.

Anticoagulation therapy may utilize heparin alone, dicumarol alone, or a combination of both; in the last case, heparin is injected first, followed by dicumarol. In any case, methods for adjusting the dose are essential, and depend upon measuring the coagulability of the blood. This can be done in the case of heparin by using the clotting time (Lee-White method) and in the case of dicumarol by the prothrombin time (Quick method). In general, satisfactory levels of heparinization are reached when the clotting time is greater than fifteen minutes. Dicumarol is effective as an anticoagulant when the prothrombin time reaches a level of 20 to 30 per cent of normal. Anticoagulant therapy should be planned carefully, and only with meticulous control based on accurate methods for measuring blood coagulability. These methods, as already indicated, are not easy to carry out, and many observers have emphasized the need for assigning to one individual or group of individuals the re-

sponsibility of making these measurements. Indeed, in some hospitals a team has been set up under whose direction all anticoagulant therapy is carried out.

Heparin alone, usually as sodium heparin, may be given intravenously or subcutaneously. For the latter a menstrum has been devised (Pitkin) having the advantage of gradual absorption, thus avoiding the necessity of continuous intravenous injections or of repeated single injections. The dis-

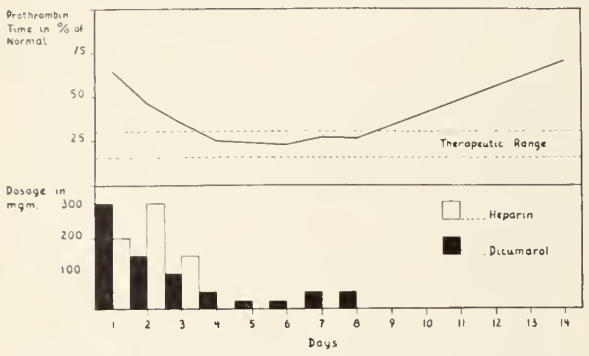


Fig. 2. Postoperative anticoagulant therapy for phlebothrombosis.
The patient, a 45 year old housewife, twelve hours after cholecystectomy complained of a pain in her right foot and calf; examination revealed tenderness in the plantar surface of the foot and over the calf on pressure. There was slight edema of the ankle. Anticoagulant therapy with heparin and dicumarol was started immediately. The patient was kept in bed for six days and then permitted up. Note the excellent therapeutic level of reduced prothrombin time achieved for nearly a week. Note also that this level returned to normal only several days after cessation of therapy. The curve of prothrombin time attained in this case required close cooperation between the laboratory and the bedside. Meticulous control of the laboratory procedure was also essential.

advantage of the Pitkin menstrum is the pain and disability that it produces locally. When used intravenously an initial dose of heparin for the average sized adult is 100 mg., which is generally effective for about four hours, when the dose must be repeated. If continuous intravenous injection is used, 100 mg. should be administered so as to run in during this period. The clotting time is taken at each four hour interval, and the dose of heparin increased or decreased, usually by about 50 mg. for every four hours in order to keep the clotting time at about fifteen minutes or longer. This routine is maintained for a period of from ten to fourteen days or until the danger of pulmonary embolism is over and the patient is ambulatory. If it is used chiefly as a preliminary to the use of dicumarol it is only required for from twenty-four to forty-eight hours. Heparin also may be used in connection with ligation of the femoral vein even in patients with definite evidence of pulmonary embolism, ligation being designed to prevent further embolism and the heparin to prevent propagation of the pulmonary clot.

Dicumarol alone in an average sized adult should be given at an average initial dose of about 300 mg. by mouth, varying both with the weight of the patient, between 250 and 350 mg., and also with the initial prothrombin time. It generally takes from twenty-four to thirty-six hours for a definite effect to be achieved, which is measured in terms of the prothrombin time. Following the determination of the prothrombin time on the next day, a second dose of about 200 mg., more or less, is then given. When the prothrombin time has reached the level of about 20 to 30 per cent of normal, a much smaller maintenance dose is generally necessary, which is usually about 25 to 75 mg., of the dicumarol per day (see figures 2 and 3).

Heparin and dicumarol are used together when both an immediate and a prolonged effect are desired. In this case heparin is used for the immediate, and the dicumarol for the prolonged effect. Heparin is given for from twenty-four to forty-eight hours, and discontinued as soon as the prothrombin time reaches the desired level with dicumarol.

Relation of Anticoagulability to Movement.— Anticoagulant therapy should always be continued while the patient is at rest in bed and should be carried over to the period when he is up and about, and discontinued only after full mobility has been

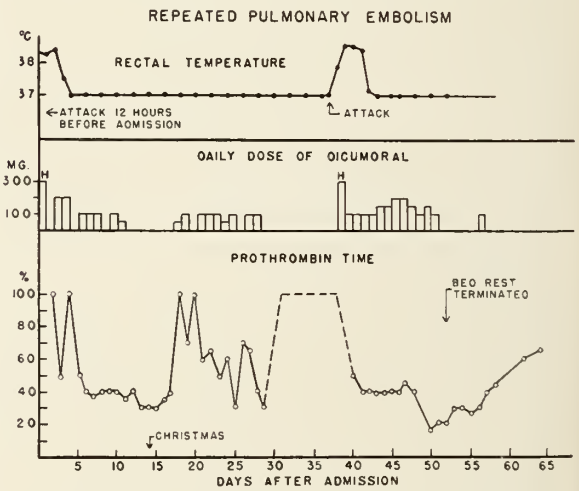


Fig. 3. Anticoagulant therapy of repeated pulmonary embolism.
Two attacks are represented in this chart; note the fever with each. The dose of heparin (H) and dicumarol are indicated as well as the coincident measurement of the prothrombin time. Note the lag in the response of the prothrombin time to dicumarol in the initial period of treatment, and the persistence of the low value for several days after dicumarol was inadvertently omitted during the Christmas holidays. (Case 54).

achieved. Many examples of pulmonary embolism have been recorded in which the anticoagulant therapy was discontinued while the patient was in bed only to find that an embolism occurred as soon as motility was permitted. The following example is illustrative.

Case 54. The patient was a 53 year old auto dealer who sustained a fracture of the right tibia and fibula.

The fragments were in good position and a plaster cast was applied and the patient was sent home. One month after discharge the patient, having been at rest in bed during this time, suddenly developed epigastric symptoms of what seemed to his doctor to be acute indigestion. This was followed by pain in the left chest, expectoration of blood-tinged sputum and pain on respiration. Physical examination revealed signs of pleuritis and dulness in the left chest. The systolic blood pressure was 98 at the time, but later rose to 120.

He was admitted to the hospital twelve hours later with a fever of 38.2 C. and pulse 110. There was slight cyanosis and ortheopnea. X-ray shortly afterward showed pneumonitis of the left lower lobe and a shadow suggestive of a pulmonary infarct. The patient was put on anticoagulant therapy, first with heparin and then with dicumarol. The prothrombin time was maintained at around 30 to 40 per cent of normal except for a short period (see fig. 3). The cast was removed, but the patient kept in bed; the dicumarol therapy was discontinued.

Seven days later, after an evening meal, the patient complained of moderate epigastric discomfort which became more intense and was followed by progressively increasing dyspnea. There was a slight nonproductive cough, but the patient stated that the pain was quite similar to that associated with his previous attack. Dyspnea was worse in the supine position, but relief could be obtained while the patient was sitting up. Examination showed shallow, rapid respirations and a short expiratory grunt. There was slight dullness to percussion over the right lung with increased tactile fremitus and moist rales. There was moderate epigastric muscle guard and slight tenderness on deep palpation. Radiograph of the chest showed a triangular area of increased density on the right, suggestive of pulmonary infarct. Examination of the legs showed some pain over the right femoral vein, but little tenderness. No abnormality on palpation of the calf or lower abdomen was noted. The temperature, which had risen to 38.6 C. with the onset of the attack, gradually returned to normal on the third day. Ligation was considered, but a repetition of anticoagulant therapy was used instead, using heparin immediately, followed by dicumarol. This time the anticoagulant therapy was maintained until the patient got out of bed and was completely ambulatory (see fig. 3). Recovery was uneventful and he was sent home. He has had no further difficulty.

Comment.—The primary mistake in this case was discontinuing anticoagulatory therapy after the first attack while the patient was still in bed. Mention should also be made of the inadvertant omission of the drug for several days during this first period (this was during the Christmas holidays). The chart shows, however that the prothrombin time may remain low for forty eight hours or longer without dicumarol. Note also the lapse of time after the start of dicumarol therapy before the prothrombin time falls. Note should be made of the epigastric localization of the initial pain and that the patient's physician interpreted the first attack as due to indigestion. This case shows an excellent result with this form of treatment without the necessity of vein ligation. This particular case, from the local findings, would undoubtedly have required exposure and ligation of the iliacs or vena cava.

Indications for Anticoagulant Therapy.—To prevent phlebothrombosis by giving anticoagulants to all postoperative patients has been recommended by a number of observers and a definite reduction in the incidence of deep thrombosis and even elimination of fatal pulmonary embolism has been claimed. Thus Murray[37] reported that no instance of phlebothrombosis or pulmonary embolism occurred in 400 cases in which anticoagulant therapy was given as routine, whereas in previous nontreated cases the incidence of fatal pulmonary embolism was 3 to 7.5 per cent. Wise, Loker and Brambel[58] describe an extensive experience in which 3,304 surgically treated patients were given an average of from 600 to 800 mg. of dicumarol, 200 mg. on their second postoperative day, and then additional doses on alternate days to maintain a relative prothrombin time 40 per cent of normal. Only one patient developed signs of embolism and there was but one death questionably due to embolism. Two control groups were described, one of 7,200 patients treated without anticoagulants during the preceding five years; in this group twenty patients showed embolic phenomena and five died thereof. The other control group was observed concurrently with the treated group; for one reason or another they were not given anticoagulant therapy. Of these 3,030 patients there were eight who showed embolic phenomena, and five died thereof. Among the 3,304 treated cases 76 showed minor signs of hemorrhage and three were severe enough to require transfusions, but none died of dicumarol.

Despite these and other experiences, most surgeons would deny the need for such a routine use of anticoagulant therapy. On the other hand it might be so justified in certain groups of patients in whom there is a significant likelihood of thrombosis and embolism as, for example, in (a) those more than 60 years of age, (b) those in whom early movement either in or out of bed is not possible, (c) older patients with fractures of the lower extremities, and (d) obese individuals in whom it is difficult to maintain leg exercises or observe early thrombotic changes in the extremities. It is difficult at present to evaluate these recommendations in terms of controlled data, although observations are being carried out by many clinicians and scientists in various parts of the world; doubtless unequivocal answers to this question will be forthcoming eventually.

Anticoagulant therapy, however, is certainly indicated in the case of a patient who has already experienced one nonfatal pulmonary embolism as well as in a patient who has unmistakable evidence of phlebothrombosis. In the former case the anticoagulant would be designed to prevent the likelihood of another pulmonary embolism as well as to prevent extension of the clot in the lung. In the second case it would aim to halt the process of phlebothrombosis so that the clot would not in-

crease and would, therefore, be less likely to be broken off and lead to pulmonary embolism. The justification for anticoagulant therapy in this type of case is much more logical, rests on much sounder clinical evidence and can be recommended. Indeed, the results have been so effective as to cast considerable doubt upon the need for ligation of the femoral vein as a prophylactic procedure.

As active therapy, anticoagulant drugs are indicated for pulmonary embolism itself. Here heparin must be used because of the need for rapid action. Once a therapeutic effect has been produced, dicumarol can then be used. Thus Murray[37] reported 149 cases in which survival followed the use of heparin in patients already showing signs of pulmonary embolism. Dyspnea, pain and cardiac embarrassment diminished within a few hours and in from twenty-four to thirty-six hours had largely disappeared.

Dangers of Anticoagulant Therapy.—Dicumarol being a definite hepatic toxin should not be used when severe damage to the liver is present. Neither heparin nor dicumarol should be used in any patient who has shown a hemorrhagic tendency or who has certain types of blood disease. Patients with large open wounds in which hemostasis has been inadequate should also not be given anticoagulant therapy. Danger from hemorrhage is most likely following prostatic surgical procedure. However, heparin seems less likely to be followed by bleeding than dicumarol and indeed, according to Jorpes,[28] may be started as early as three hours following the conclusion of operation.

When given carefully and with frequent measurements of the coagulant tendency of the blood, the danger of unexpected hemorrhage is not great. However, it must always be watched for. When such bleeding is external, it can be detected easily; bleeding is apt to be occult when it occurs within the body, and this requires constant observation. Should definite evidence of hemorrhage occur as shown by a fall in the red count, by circulatory impairment, or by localized signs of bleeding, anticoagulant therapy must be discontinued at once. In the case of heparin such discontinuance is almost immediately effective, but with dicumarol, because of its prolonged effect, vigorous antagonistic therapy is needed to halt its action promptly. For this purpose vitamin K should be administered. A blood transfusion is probably more effective; not only does it provide prothrombin which counteracts the effect of the dicumarol, but it restores blood volume which is particularly valuable when the hemorrhage has resulted in any degree of circulatory impairment.

THROMBOPHLEBITIS FEMORIS

This postoperative complication, as already mentioned, is well known, produces obvious and clear-cut clinical manifestations, and offers little or no danger of a fatal outcome from pulmonary embolism. Because of the white swelling associated with the disease, the term "milk leg" has often been applied, particularly since it is not uncommon after childbirth. Phlegmasia alba dolens is another term conveying the same meaning as well as the symptom of pain which is not infrequent. Phlegmasia is a somewhat misleading word in this designation since the leg is usually cold rather than warm, even though the reaction is an inflammatory one.

Thrombophlebitis femoris is an acute inflammatory process involving the wall of the femoral and often the iliac vein, together with the surrounding lymphatics and adventitia of the associated artery, thus producing a lymphatic as well as a venous obstruction and arterial spasm. Eventually the inflammatory reaction subsides and the thrombosis filling the vein becomes recanalized.

Thrombophlebitis femoris often is ushered in with a chill and fever followed soon by pain and swelling of the entire effected leg, usually the left, and more marked on the inner aspect of the thigh. There is often exquisite tenderness especially along the course of the femoral and iliac veins. The entire leg is increased in size, pale and somewhat cold, due undoubtedly to the associated arterial spasm. Spontaneous subsidence is slow, usually requiring two or three weeks without special therapy. It thus has the effect of greatly prolonging convalescence. While complete restoration of function is frequent, many of these patients suffer chronic disability after the acute phase is over. This consists of persistent pain, swelling and occasionally chronic ulceration of the lower leg. The mechanism of these symptoms is not entirely clear, but is due to one or both of two anatomical changes, a deep chronic lymphangitis and the incompetent deep venous return due to destruction of the femoral valves as the thrombus becomes canalized. The evidence for the latter idea has been well worked out by Bauer[6] who also has recommended and carried out ligation of the popliteal vein with excellent amelioration of symptoms.

Therapy.—Symptomatic treatment was the rule until recently; this consisted of elevation, rest of and local applications of heat to the affected leg, and the use of analgesic drugs. More specific therapy can now be recommended based upon present knowledge; this consists of chemotherapy, paravertebral block and the use of anticoagulant drugs.

Chemotherapy is best carried out with penicillin; when a specific bacterial agent is involved susceptible to this drug, a dramatic response is sometimes seen. Unfortunately this does not always occur. Paravertebral block is designed to relieve the pain and improve blood flow by combating arterial spasm. This in itself seems to accelerate the healing process. The use of paravertebral block in this condition has been especially emphasized by Ochsner.[43] The value of anticoagulant therapy depends almost entirely upon its effect in shortening the period of disability in this condition by halting the

spread and even promoting the absorption of the thrombus.

OTHER TYPES OF THROMBOEMBOLIC DISEASE

An arterial embolism originating from the heart or lungs is exceedingly rare but may occur in the postoperative period. Diagnosis is usually not difficult since it is ushered in by sudden and severe pain, usually in the foot or lower leg followed by blanching of the affected tissue supplied by the obstructed artery. Embolectomy, if carried out promptly, is probably the most effective therapy. When the patient is seen late, paravertebral block and anticoagulant therapy probably will aid in the development of an adequate collateral circulation and thus prevent or minimize the danger and extent of gangrene.

Mesenteric thrombosis either from spontaneous disease of the vessels or because of embolism into the mesenteric arteries is also rare and is manifested with all the signs of an acute abdominal emergency including peripheral circulatory impairment or collapse. A definite diagnosis usually can be made by an exploratory incision. This also permits possible embolectomy or resection of small segments of the intestine if this seems indicated. However, the successful use of anticoagulant therapy has been described by Murray[39] and by Ravdin.[51]

Recurrent thrombophlebitis and phlebitis migrans is a rare but disabling condition which may follow injury. It has been shown to respond well to prolonged dicumarol therapy. For example, Foley[14] has reported nine such cases in which the drug has been successfully given for from eighteen to twenty-nine months.

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FIND CHLOROMYCETIN EFFECTIVE AGAINST TULAREMIA

Successful treatment of six cases of tularemia, also known as rabbit fever, with chloromycetin, one of the newer antibiotic drugs, is reported by a group of doctors from the University of Maryland School of Medicine, Baltimore.

The disease is acquired from wild rabbits and other wild animals and insects. It occurs as a local skin lesion and as a generalized infection with fever.

The doctors—Robert T. Parker, Robert E. Bauer, Howard E. Hall and Theodore E. Woodward—and Leonard M. Lister, a medical student, describe their findings in the May 6 *Journal of the American Medical Association.*

Both streptomycin and aureomycin previously have been shown to be valuable in treating tularemia.

ADVANCES IN NUTRITION PROMISE GREATER VIGOR AND LONGER LIFE

Newer advances in nutrition promise better control of disease, greater vigor and longer life, according to Dr. James R. Wilson, Chicago, secretary of the American Medical Association's Council on Foods and Nutrition.

Enrichment and fortification of cheap staple foods, such as bread, milk, and oleomargarine, addition of iodine to table salt and discovery of the B complex vitamins were cited by Dr. Wilson as major achievements in nutrition which are making important contributions to health and vigor.

There is evidence that good nutrition has been important in producing the increase in height observed in the United States during the past 30 years, and that it may play an important role in delaying the degenerative changes of aging, he pointed out.

Practically all scientific knowledge of nutrition is relatively new, he said. The vitamin series dates from the work of Dr. Elmer V. McCollum at the University of Wisconsin in 1909. Dr. McCollum isolated and named vitamin A and vitamin B_1 and its use to prevent degeneration of the nervous system in pernicious anemia is an achievement of the last few years.

On the frontiers of nutrition, the search for additional useful vitamins and minerals continues and research is being carried on in geriatrics and plant genetics.

Effective application of scientific knowledge of nutrition largely depends on housewives, Dr. Wilson said. As "administrators of civilization" they are important in bringing advances in nutrition into practical use.

Dr. Wilson emphasizes these rules to follow daily for good nutrition at any age above infancy:

1. Eat an egg and at least one serving of another protein food.

2. Use whole grain or enriched bread and other whole grain or enriched cereal products.

3. Make sure the salt in the kitchen is iodized unless you live near the sea coast or eat sea foods liberally.

4. Drink pasteurized milk (a pint for adults, a quart for children and old persons—vitamin D enriched for all persons who get little sunlight).

5. Eat at least two servings of green leafy or yellow vegetables and at least one serving of citrus fruit or tomatoes and other fruits or vegetables containing vitamin C.

6. Use butter or enriched oleomargarine.

FIND PENICILLIN TREATMENT PREVENTS RHEUMATIC FEVER

Rheumatic fever can be prevented by treatment of streptococcic infections with penicillin, a study made by Army Medical Corps Officers in cooperation with Cleveland and Palo Alto (Calif.) physicians indicates.

The study, which was conducted at Fort Francis E. Warren, an air force technical training base in southeastern Wyoming, is reported in the May 13 *Journal of the American Medical Association.*

The significance of an adequate means of prevention of rheumatic fever may be realized when it is considered that the disease develops in an estimated 200,000 to 250,000 persons in the general population of the United States yearly, the authors point out. At least 460,000 persons in this country today are believed to have rheumatic heart disease.

Not only is rheumatic fever a menace to health, but it is also a serious economic problem. A conservative estimate of the cost of each case that occurs in the Armed Services (an average of 7,300 cases annually from 1942 through 1948) is $16,000.

"A total of 798 patients with streptococcic infections were treated with penicillin; in only two did acute rheumatic fever subsequently develop," the research group reports, adding:

"Of 804 untreated patients, the disease developed in 17. Penicillin likewise eradicates the streptococci in many cases."

The total of 1,602 patients were admitted to the hospital during January through June, 1949, for streptococcic infection of the respiratory tract. Follow-up studies for the detection of rheumatic fever were performed between the third and fourth weeks after the initial infection.

"If the incidence of rheumatic fever is to be reduced materially by early treatment with penicillin, it becomes necessary that streptococcic infections be diagnosed accurately and early," the authors say.

"In some cases the clinical findings alone will permit an almost certain diagnosis of streptococcic infection. Characteristically, such illnesses present a sudden onset of sore throat with pain on swallowing, fever and other reactions. Supportive data may be obtained from the laboratory."

The study was made by Capt. Floyd W. Denny, Capt. Lewis W. Wannamaker and Capt. William R. Brink of the Army Medical Corps; Dr. Charles H. Remmelkamp, Jr., of Cleveland, and Dr. Edward A. Custer of Palo Alto.

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Gray, L.: J. Clin. Endocrinol. 3:92 (Feb.) 1943.

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The so-called collagen diseases have been given considerably more attention, particularly in regard to periarteritis nodosa, lupus erythematosus, scleroderma, etc.
The chapters on metabolism and on the ductless glands have been considerably enlarged.
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Clinical Conference

CLINICAL PATHOLOGIC CONFERENCE

Weekly Pathologic Conference
St. Louis University School of Medicine

A 57 YEAR OLD white male was admitted to the hospital on June 30, 1949, with history of swelling of the wrist and ankle joints of about three weeks' duration for which he had been advised to have his teeth extracted. Following the extraction, the joint symptoms became worse. He was dyspeptic, and a cough which he had had since the onset of symptoms was productive of copious sputum but no hemoptysis was present.

Additional history from his wife and brothers revealed only that he had had frequent colds and they did not know if he had used any sulfa drugs. He had a similar episode with "kidney stone" in 1929 when he apparently went "out of his head." The onset of the present illness was about seven weeks previous, beginning with an ache in the left foot and ankle. About four weeks prior to admission both feet became quite swollen and a physician advised that his teeth be extracted. Seven teeth were removed at one sitting. He had had fever for about six weeks. Adequate history could not be obtained from the patient so his private physicians were contacted.

Telephone conversation with Dr. A.: This patient was first seen by Dr. A. on May 31, 1949, with the complaint of pain and swelling of both ankles of three weeks duration. His temperature was 99.6 F., respirations 40, and blood pressure 108/80. He had rales in the left lung field. The white blood count was 14,000 with a slight shift to the left. Hospitalization was refused by the patient and he was treated with 300,000 units of penicillin intramuscularly on three occasions. When the patient was seen on June 11, 1949, hospitalization was again advised but refused.

Telephone conversation with Dr. B.: This patient was first seen by Dr. B. during the last week of June with same complaints and with the history of his teeth having been extracted. He was given 600,000 units of penicillin in oil and beeswax and, in addition, 20 cc. sodium salicylate compound was administered intravenously and thirty-six sulfadiazine tablets with sodium bicarbonate (gm. 1, t.i.d.). Later the patient was given 2 gm. of streptomycin, and 300,000 units of penicillin daily. There was considerable improvement.

Physical examination on admission revealed an obese white male, lying flat, toxic and with rather labored respiration. The pupils were round, regular and equal, but reacted sluggishly to light. Some tenderness in the right posterior cervical region was present but no definite nodes were palpable. He complained of severe pain on the right side and in his back, being unable to move. The lungs were clear to percussion and auscultation. The heart tones were good, regular and no murmurs were heard. The apex beat was palpable in the fifth intercostal space, 11 cm. to the left of the midsternal line. The blood pressure was 130/90. The abdomen revealed tenderness in the right side, most marked in the right upper quadrant with slight muscle guard. There was slight tenderness in the left upper quadrant. Two plus pitting edema of the dorsum of the foot and lower third of both legs was present. Horizontal pinhead size petechial spots were on both ankles. Deep tendon reflexes were active and equal. Some muscular twitching also was noted.

Urinalyses revealed no abnormalities except on microscopic examination there were from 20 to 25 red blood cells and from 5 to 8 white blood cells on one occasion and on another only many white blood cells. There was two plus albumin. Examination of the blood revealed a red blood count of 2.93 million, the hemoglobin was 7.6 gm. and the white blood count was 9,500, with 83 neutrophils, 5 lymphocytes, 4 monocytes and 8 eosinophils. Nonprotein nitrogen was 125 mg. per cent and rose to 250 mg. per cent before the patient expired. The sugar was 110 mg. per cent, the CO_2 combining power was 7.65 milliequivalents, the sodium was 124 milliequivalents, the chlorides 105 milliequivalents, the potassium 7.6 milliequivalents, the uric acid 10 mg. per cent and the creatinine 12.1 mg. per cent. The Kahn test was negative. Agglutination tests and blood culture were negative.

The chest roentgenogram of July 1 (bedside) revealed generalized accentuation of the bronchovascular markings and suggestive consolidation in the apical region on the right. An electrocardiogram revealed only a right axis deviation and sinus tachycardia.

After admission the patient was given blood transfusions, parenteral fluids, sodium salicylate compound and sedation. On the third day the patient was mentally clear and the edema had subsided, but petechiae were unchanged. On the following day he was disoriented and anuric. On the fifth day the blood pressure was 130/50. He was catheterized and 120 cc. of turbid urine was obtained revealing 3 plus albumin and many red blood cells. On the sixth day, the pulse became weak, he developed Cheyne-Stokes respiration and shortly thereafter expired.

DISCUSSION

RALPH A. KINSELLA, M.D.: This patient entered St. Mary's Hospital after having been in the hands of at least three doctors, so that is the explanation of the attempt for the additional history, and I think that this history is not complete. There was a Dr. C. who saw the patient in the beginning and

Published in *The Bulletin*, St. Louis University Hospital, 2: (February) 1950.

treated this patient with sulfa drugs. Then there appeared some joint pains that were disabling, and I believe it was this doctor that advised the removal of his teeth. The next doctor advised hospitalization and gave him 300,000 units of penicillin three times but the patient refused hospitalization. The third doctor (Dr. B.) also gave him penicillin and 36 sulfadiazine tablets and also soda bicarbonate and sodium salicylate. Then streptomycin was given, hospitalization was advised and then Dr. B. left town, so I fell heir to this patient.

He came into the hospital and, during the few days he was in, he had almost no excretion of urine. His chief complaint was overwhelming weakness. He had some edema of the legs and there were some petechial spots on the legs. He had unusual laboratory findings which I will ask Dr. Muether to discuss later. So, here was a patient that was in a state of total renal failure when he entered the hospital and attempts to relieve this failure were fruitless. The production of joint swellings following the use of sulfa drugs, especially if used on two occasions, is not uncommon. This is the fifth case in my own experience in the last eight to ten years in which it seems definitely that joint swellings occurred in a patient who had received sulfa drugs for some ailment which had nothing to do with joint swellings at the time. In most instances sore throat or some other infection was present. The drug is not used so often nowadays, but still has some general use. All are familiar with some of the allergic manifestation of sulfa drugs and there have been autopsies and conferences here on such cases. When the clinical picture is complete there is a rash fairly generalized over the entire body, of a maculopapular, pink, coarse, confluent variety, and a state of terminal delirium, difficult breathing, a condition of pneumonia and, finally, renal failure, anuria, and a high nonprotein nitrogen. This patient undoubtedly had renal failure, and the discussion at the time he was in the hospital revolved around the various causes of renal failure that might be present in his case. Certainly there was nothing in the history during the life of this individual that furnished an occasion for shock. An attempt was made to determine whether or not this patient had iso-agglutins in his blood and none were found. The clinical diagnosis, then, was no farther along than renal failure, and the etiology was left open. There was good reason for thinking of terminal chronic nephritis, or sulfa drug allergy with renal failure, or the third possibility was lower nephron disease with renal failure.

Dr. Muether, what do you think of these laboratory findings?

R. O. Muether, M.D.: These findings are all consistent with a severe degree of renal insufficiency. On July 4 he had a brown sediment in a catherized specimen of urine which was not examined apparently and it would be interesting to know what the sediment was. He had many red cells in one specimen and in another many white cells. Such findings are difficult to interpret, but they happen so consistently in patients that it probably does not represent an error in the actual examination of the specimen but is probably the result of changes in the pH and dilution of the urine which destroys one formed element and not another.

The patient had the severe anemia which is consistent with severe renal insufficiency. On admission he had a nonprotein nitrogen of 125 mg. per cent and since he did not pass any urine from that time on, it is reasonable to expect it to increase. The rest of the laboratory findings are consistent with anuria from any cause. The uric acid and the creatinine were high and, incidentally, it is stated that a creatinine above 5 mg. indicates a fatal outcome, and this was borne out in this case.

The sodium was 124 milliequivalents or 285 mg. per cent, the chlorides 630 per cent mg. or 105 milliequivalents, and the potassium 7.6 milliequivalents or 30.4 mg. per cent, which is a tremendously elevated potassium. In severe renal insufficiency and anuria the potassium slowly rises to high levels and the sodium tends to fall. These laboratory findings are consistent with renal failure, but I do not believe that they will help in the differentiation of lower nephron nephrosis, chronic glomerulonephritis, periarteritis or nephrosclerosis. These findings are consistent with a rather sudden failure of the kidney to excrete urine and a piling up of all these substances. He did not have an elevated body pressure, and this is against the diagnosis of lower nephron nephrosis. The duration of life is not inconsistent with a diagnosis of lower nephron nephrosis. Such patients may survive eight to ten days and then succumb. If one tries to differentiate between so-called "sulfa" kidney and lower nephron nephrosis, one complicates the problem. It is difficult to know just how to make the differential diagnosis. The deposition of "sulfa" crystals may produce tubular obstruction and anuria, but sulfa drugs may cause damage to sensitized tissue. The eosinophilia count of eight on admission cannot be called an eosinophilia, but it is a higher eosinophil count than one would expect and might suggest some type of allergic reaction, probably from sulfa drug administration.

W. A. Knight, M.D.: How do you account for a falling sodium, a rising potassium in any anuric patient who has been receiving sodium sulfadiazine, sodium bicarbonate, and the patient is not vomiting?

Dr. Muether: I do not know that I can account for that situation. Ordinarily, the sodium is exhausted or may be exhausted by vomiting. Do you have an explanation?

Dr. Knight: No, unless it is due to the edema that the patient had and the sodium is retained in the intercellular fluid.

Dr. Muether: Well, he apparently did not have much edema. It was mentioned that he had a 2 plus pitting edema and this disappeared during his illness.

G. O. BROUN, M.D.: Did he have any pigmentation that might have suggested anything like Addison's disease?

DR. KINSELLA: No, I think not.

DISCUSSION

CLINICAL DIAGNOSIS

Glomerulonephritis, acute and chronic.
Uremia.
Arthritis, infectious.

DR. KINSELLA'S DIAGNOSES

Terminal chronic nephritis.
Sulfa drug allergy with renal failure.
Lower nephron nephrosis.

PATHOLOGIC DIAGNOSES

Periarteritis nodosa involving: kidneys, lungs, liver, spleen.
Subacute glomerulonephritis.
Interstitial nephritis.
Uremia.

PATHOLOGIC DISCUSSION

VINCENT MORAGUES, M.D.: The significant autopsy findings were as follows: Petechial hemorrhages were found in the lower third of each leg, also on the pleural surfaces, pericardium and peritoneum.

The heart was somewhat soft and flabby and weighed 350 grams. The valves, the endocardium and the coronary arteries were essentially normal. The right lung weighed 525 grams, the left 315

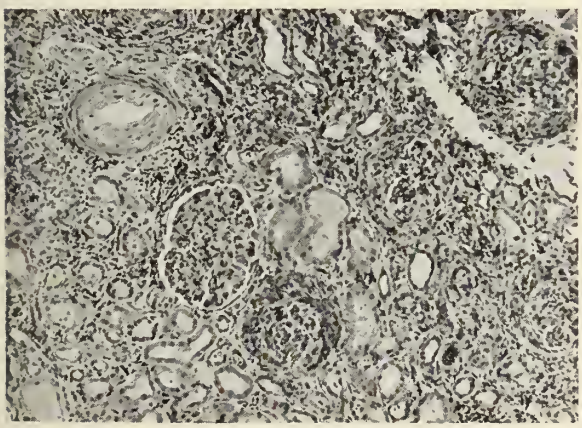


Fig. 1

grams. Both lungs showed hypostatic congestion and some localized areas of pneumonia. An occasional thrombus was noted in the pulmonary vessels. The liver was large, presented some subcapsular petechiae and a marked nutmeg appearance. It weighed 2,450 grams.

The spleen weighed 275 grams and presented a beefy-red color from congestion. The small intestine was distended with gas throughout and presented many petechial hemorrhages on both the serosa and mucosa.

The right kidney weighed 270 grams and the left 350 grams. Both kidneys presented the same appearance, with a slightly granular surface that revealed some petechial hemorrhages. The cut surface revealed a thickened cortex and a reddish-brown color.

The rest of the gross postmortem examination was noncontributory.

MICROSCOPIC NOTES

The lungs revealed focal areas of pneumonia, with the alveoli containing a fibrino-purulent exu-

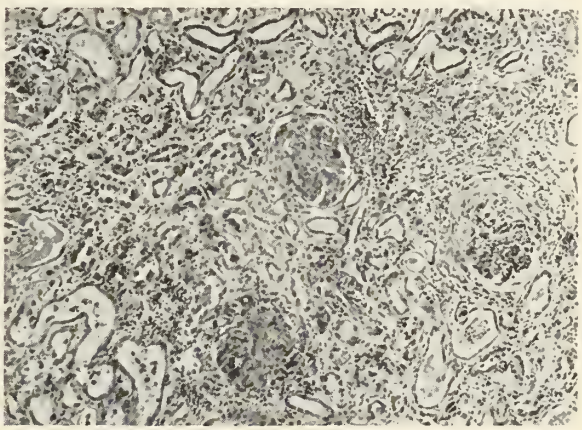


Fig. 2

date. Some thrombi were seen in the pulmonary arteries. One artery revealed the typical appearance of periarteritis nodosa, with the hyaline necrosis and the infiltration of the entire thickness of the wall by inflammatory cells.

Both the liver and the spleen revealed congestion and some lesions of periarteritis.

Both kidneys revealed diffuse and severe involvement. Practically every glomerulus showed endothelial and epithelial proliferation, with well formed cellular crescents (figs. 1 and 2). The glomerular tuft capillaries were rather bloodless and showed a few hyaline thrombi with an occasional embolic lesion. The interstitial tissue showed infiltration with mononuclear cells and eosinophils. Some heme casts were present in the distal convoluted tubules and in the collecting tubules. Several arteries in the sections revealed the hyaline necrosis and cellular infiltration typical of periarteritis nodosa (figs. 3 and 4).

DR. KINSELLA: There is some discussion as to whether sulfa drug can cause only small arterial periarteritis, or can also cause larger artery periarteritis.

DR. MORAGUES: Some groups of investigators try to separate periarteritis from what they call hypersensitivity angiitis. These investigators apparently do not believe in Rich's work showing that periarteritis is due to hypersensitivity. Personally, I feel that one can see pictures of the so-called hypersensitivity angiitis in just different stages of periarteritis. If one examines the lesions from an

acute case and those from a more granulomatous stage, one sees some differences.

Henry Pinkerton, M.D.: I think that this is an important and interesting case. All know that in sulfa drug fatalities, there is a wide variety of lesion. There may be nephrosis, an interstitial pneumonitis, an anemia, leukopenia, thrombocytopenia, and one may find arthritis. All of these are probably of allergic nature. It is only recently that it has been realized, I believe, that glomerulonephritis is a part of the picture of periarteritis nodosa. The

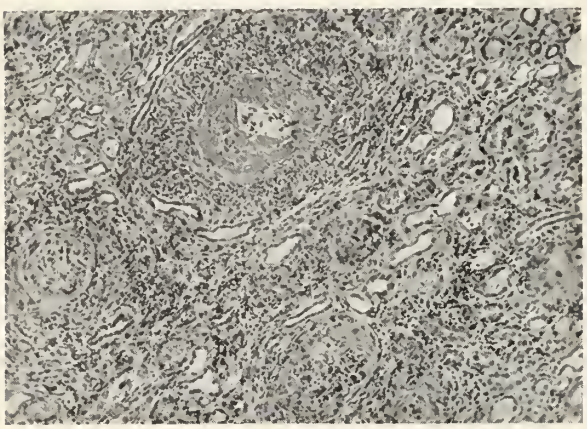


Fig. 3

glomerulonephritis probably is caused by an extension of the periarterial extension along the smaller vessels right out into the glomeruli themselves. Now, regarding the question of the role of the sulfa drug in this particular case, it is still a little difficult to answer. It is known that the sulfa drugs cause periarteritis and, as Dr. Moragues said, if the sulfa drug was given prior to the onset of the joint symptoms, then I should say that the whole thing could be explained as a sulfa drug sensitivity.

It is known that sulfa drug fatalities are not at all uncommon. More usually they take the form of the lower nephron nephrosis type of thing, but periarteritis has been found in a fairly large percentage of cases. Recently, several students have raised the question as to whether one is seeing more periarteritis nodosa than in past years because of the use of sulfa drugs. I do not think that that has been definitely established but it is a reasonable consideration to keep in mind.

In any case, to sum up a little of the knowledge of periarteritis nodosa, one can say that there is a definite type of allergic arteritis having a specific type of picture, and it is the picture seen from the sections in this case. Sometimes the antigen that brings out this allergic reaction is obvious. It is obvious in the cases of sulfa drug sensitivity, and it is also obvious in the cases of serum sickness, in which the antigen is horse serum. Several years ago there was a case of a young girl who was given tetanus antitoxin and who developed serum sickness, and about three months later died of a progressive disease which shared the features of rheumatic fever and periarteritis nodosa but, eventually on closer study, it was found that it was consistent with disseminated lupus erythematosis. That seemed to tie these three conditions more or less together.

If one considers the diseases which are commonly believed to be of an allergic nature, there are periarteritis nodosa, rheumatic fever, rheumatoid arthritis, scleroderma, disseminated lupus erythematosis, asthma and glomerulonephritis. In all of these, except perhaps asthma, there is an allergic arteritis, though it varies somewhat from one case to another. The arteritis of rheumatic fever is not exactly a periarteritis. The Aschoff bodies are collections of large mononuclear cells, in the heart, in a perivascular position. At least all these conditions show a rather peculiar and rather distinctive type of periarterial lesion. Periarteritis nodosa involving the renal arterioles has been known for at least twenty years to give hypertension, and to be really one type of maliginant hypertension.

Now an interesting question arises in connection with the relationship of periarteritis to renal damage. It seems possible that certain cases of hypertensive cardiovascular disease may be due initially to periarteritis nodosa but that when the patient comes to autopsy no evidence of the nature of the

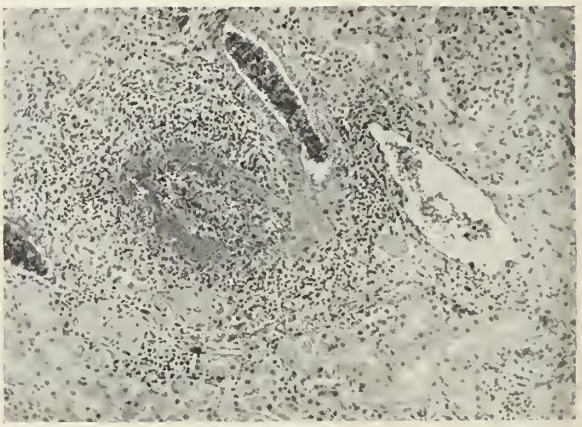


Fig. 4

arterial lesion may be found. A case several years ago is of particular interest. This was a young student who had a biopsy that showed he had periarteritis nodosa. He ran a rapid downhill course, with tremendous hypertension, and at autopsy showed a typical picture of malignant nephrosclerosis. No evidence of periarteritis nodosa could be found. So it seemed possible that the periarteritis burned out or turned into fibrous tissue. Several workers have suggested recently that certain cases of malignant hypertension may be on an allergic basis. This certainly is an interesting concept.

Going over the entire history of this case today,

a number of things suggest allergy. In the first place, the patient had fever (of course that is common), then the patient had arthritis and, at autopsy, he had glomerulonephritis and periarteritis nodosa. Now, whether or not this patient may have had some lesions of hypersensitivity before sulfa drug was begun, of course, cannot be answered. There is one important point, however, and I think that Dr. Kinsella will agree with me, and that is that in a patient who has shown evidence of hypersensitivity one should be cautious about giving sulfa drugs and perhaps also about giving horse serum, for the patient who has already shown a tendency to a hypersensitive type of reaction is probably more apt to show severe damage in response to these agents than a person who has had a perfectly negative allergic history.

I would like some time to hear a discussion of cortisone, previously called compound E, in connection with the treatment of periarteritis nodosa for there seems to be some fairly definite evidence that it may be of value. It will probably take a long time to establish this definitely one way or the other, as this compound is not readily available at this time. Certainly, if there is an agent that will desensitize or which at least will prevent the allergic inflammation from occurring in cases of hypersensitivity it is an extremely important substance.

URGES COMMUNITY ACTION ON PROBLEMS OF ALCOHOLISM

The community that faces the problems of alcoholism squarely is making a sound investment in the health and happiness of all its citizens, Dr. Leslie A. Osborn, head of the Department of Psychiatry of the University of Buffalo School of Medicine, Buffalo, N. Y., said today.

An estimated 3,000,000 persons in the United States are excessive drinkers and nearly one fourth of this number are said to be chronically alcoholic.

In an article in the May 13 *Journal of the American Medical Association,* Dr. Osborn cited the establishment of centers for treatment and study of alcoholism, such as that in Rochester, N. Y., and the University of Buffalo Information and Rehabilitation Center, as a move in the direction of community responsibility.

"A community center serves as a coordinating and educational headquarters for an organized approach to the medical, psychiatric, social and public health aspects of the patients' illness," Dr. Osborn pointed out.

"The acceptance as a person and the possibility of finding real help are important early experiences for the patient coming to the center," Dr. Osborn said.

"Often he is in poor physical condition and requires organic examination; facilities need to be available for this and for temporary hospital care.

"The psychiatric study calls for the psychiatrist, particularly one with experience in problems at the community level. The psychiatrist is not nearly as effective alone as he is as part of a full psychiatric team—psychiatrist, internist, social worker, psychologist, receptionist and, for inpatient work, the psychiatric nurse.

"Added to these are other workers in various cases—clergymen, judges, social agencies and the like—whose combined efforts can bring about results that no one person can achieve. In the community there are already many who have played an active role in combating alcoholism, and particular credit here should be given to the pioneering efforts of Alcoholics Anonymous.

"A community is to be congratulated for its willingness to assist its alcoholic citizens. Whatever is invested in time, effort and funds will be fully repaid in the lives of many with whom trained personnel will work directly and still more who will benefit indirectly. Any money invested in health brings rich dividends, the most important of which are in human values.

"The definition of alcoholism as a disease brings it within the scope of clinical medicine and calls for the development of diagnostic and therapeutic methods. With regard to the more difficult problem of motivation, it is more correct to say that alcoholism is a symptom.

"As more cases are constantly being added to the already alarming total, there is need to develop a constructive mental hygiene program."

EGYPTIAN DRUG PRODUCES GOOD RESULTS IN HEART DISEASE

A drug known as visammin and also as khellin, obtained from the fruit of a plant which grows in Egypt, Arabia and Eastern Mediterranean countries, produces good results in angina pectoris, a group of Chicago doctors report.

Drs. R. H. Roseman, A. P. Fishman, S. R. Kaplan, H. G. Levin and L. N. Katz of the Medical Research Institute, Michael Reese Hospital, describe their study of the drug in an article in the May 13 *Journal of the American Medical Association.*

"Improvement of the cardiac status was definite in 11 of the 14 cases of angina pectoris," the doctors say. "Moderate improvement occurred in another case, but in the remaining two no benefit was obtained. In four instances the improvement persisted for a time after administration of the drug had been discontinued. This is attributable to the cumulative effects of the drug."

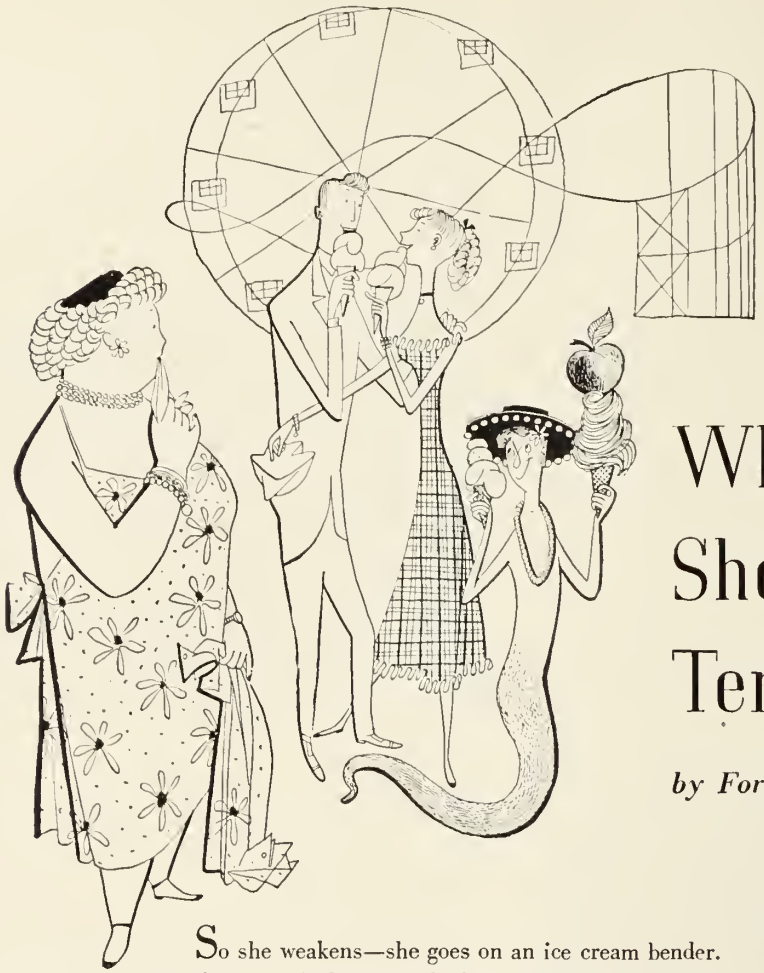
Nausea and insomnia believed to be caused by the drug occurred in five of these 14 patients. Response of the heart condition to visammin is described as "dramatic and unequivocal" in some cases.

A typical example of an excellent result was seen in the case of a 66 year old man with long-standing severe angina pectoris.

His response to visammin was rapid and progressive. Not only was he spared surgical operation to relieve the anginal pain, but he was able to extend his activities. The number of glyceryl trinitrate tablets he required daily dropped precipitously. His appetite improved, his despairing attitude resolved and he became alert.

In eight patients with enlargement of the right side of the heart or increased stress placed upon the right side of the heart by lung disease, striking improvement was noted following administration of visammin.

Single injections of visammin resulted in significant improvement in nine of 21 patients with acute bronchial asthma. The response was prompt, occurring within five or 10 minutes, and was often dramatic but usually short-lived.



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Smaller dosage is possible because weight for weight DESOXYN is more potent than other sympathomimetic amines. One 2.5-mg. tablet before breakfast and another about an hour before lunch is usually sufficient. A third tablet may be taken in midafternoon if necessary, and if it does not cause insomnia. Investigators have shown, too, that DESOXYN has a faster action, longer effect and relatively few side-effects. With judicious use DESOXYN is safe, simple and effective. Why not give it a trial? On it may lean the continued cooperation of a sweet-famished obese patient. Abbott

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Case Reports

RUPTURED SPLEEN: DIFFICULTY IN DIAGNOSIS

J. A. NIGRO, M.D.
KANSAS CITY
AND
WILLIAM VAN BUSKIRK, M.D.
KANSAS CITY

THE FOLLOWING case history is presented because of the difficulties it presented in diagnosis before and during operation. When first considered, it was believed that this patient had a spontaneous rupture of the spleen. As will be pointed out, this seemed unlikely upon closer questioning of the patient. Most authors feel that true spontaneous rupture of the spleen does not occur. Most of the cases reported as such have pathologic spleens which have received only slight trauma. The case reported probably falls in this category.

REPORT OF CASE

This was the second time this 30 year old white, married para II, gravida II, housewife had been admitted to St. Joseph Hospital. Her chief complaints on the second entry were acute abdominal pain and collapse of six hours duration.

The patient apparently was well until February 1949 when she became progressively more nervous. At that time she had no abdominal complaints, just emotional instability. She had been having recurrent attacks of chilliness for a year and on June 27, 1949, had an appendectomy at St. Joseph Hospital. A microscopic examination revealed the appendix to be normal. Before and since that operation, the patient has had a sensation of epigastric fullness. She went back to work in August 1949 and, after a week of working, began to complain of chest pain. This pain was localized in the region of the epigastrium. The pain was aching and nauseating in character and penetrated to the back and upward to the shoulders. This pain was intermittent and she complained of no dysphagia or selective food distress. The patient worked for about three weeks and then stopped on September 4, 1949, because of nervousness and abdominal pain. About this time she noticed the pain was more frequent during the night after lying down and she had to sleep on her side or stomach. The pain interfered with sleep.

Two weeks prior to admission the patient was awakened from sleep at 1:00 a. m. with a severe stabbing pain in the epigastrium and back which lasted about fifteen minutes. Except for a chilly sensation she had no other complaints and was able to return to sleep. The next morning she felt well but had some heartburn. She went to her physician who had a chest x-ray, upper gastrointestinal series and a Graham-Cole test performed. These were interpreted as normal.

On the morning of admission (September 29, 1949, 3:00 a. m.), the patient was awakened from sleep with a severe epigastric pain and anxiety. She took soda water, and collapsed. After recovering consciousness the pain radiated to the back, persisted, and was accentuated by breathing or moving. The patient stated she was relieved by lying on the right side. She vomited clear liquid twice in small amounts. Her last menstrual period was eleven days before admission and was normal. Her past history and family history were noncontributory.

Physical examination revealed a pale, sallow, white female, acutely ill, who complained of severe epigastric pain. Pulse was 56, respiration 32, temperature 98.6 F., blood pressure 86/60. The patient was lying on her right side and respiration was grunting in character. There was diffuse abdominal rigidity. Breathing caused epigastric pain and pain in the shoulders and abdominal pressure caused pain in the epigastrium, back and shoulders. The same type of pain was produced by having the patient lie on her back. The pain was continuous with waves of exacerbation. No masses were palpable. Stretching of the left psoas muscle produced severe back pain.

When admitted to the hospital, the tentative diagnosis was either perforated duodenal ulcer or acute pancreatitis. Laboratory studies revealed a normal urinalysis, hemoglobin of 61 per cent which fell to 57 per cent the next day; a red cell count of 3,750,000 which was 2,860,000 the next day; a white cell count of 21,600 with 93 per cent polymorphonuclears, 5 per cent lymphocytes and 2 per cent mononuclear leukocytes. An icteric index was 2 units; nonprotein nitrogen was 29; foline blood sugar was 65; chlorides 510; serum amylase 104 units; CO_2 combining power 48 volumes per cent. Widal reaction was reported negative in all dilutions. Roentgenologic studies revealed slight increase in the gas in the small bowel but no abnormal configuration; a slight hazy density throughout the abdomen suggesting the possibility of fluid in the peritoneal cavity; a decubitus film revealed no free abdominal air, and her chest film was normal except for slight elevation of the right diaphragm. An electrocardiogram was interpreted as sinus tachycardia.

In the hospital the patient became progressively more pale as abdominal pain increased. The hemoglobin and red cell count fell progressively, in spite of one transfusion of 500 cc. of whole blood. A pelvic examination was interpreted as showing free fluid in the cul-de-sac. No abnormal masses were palpable in the vaults. With this history and findings, it was decided to perform an exploratory laparotomy. The tentative preoperative diagnosis was ruptured ectopic pregnancy.

On the day after admission, the patient was given another 500 cc. of whole blood and was taken to the operating room where, under spinal anesthesia, the abdomen was opened through a lower midline incision. The blue shining peritoneum bulged outward. Upon opening the peritoneum a large amount of blood clot and fluid were found. The pelvic organs were examined and found to be normal. The incision was extended up to the subcostal region where the liver and gallbladder regions were found to be normal. The stomach, duodenum and pancreas did not appear abnormal. Attention was again directed toward the pelvis and after removing all the clots and fluid, the pelvic organs again were found to be normal. The left upper quadrant was explored and an enlarged spleen was found with two tears in the capsule and active bleeding from these regions. The splenic vessels were isolated, ligated and divided. Two drains were placed in the splenic fossa and the abdomen was closed in a routine fashion. The patient had received a total of 1,000 cc. of whole blood during the operation and was returned to the ward in good condition. Postoperatively, the patient did quite well. She received two more transfusions (total of five),

and was given penicillin and streptomycin. The temperature remained elevated for six days. The drains were removed on the sixth day. She was released from the hospital on October 11, 1949, thirteen days after hospital admission. She has been seen twice since then and incision is well healed and she is asymptomatic.

Pathologic report of the spleen is as follows: The specimen is a spleen which appears to be enlarged; the total weight is 260 grams; the normal anatomic notches are present. There is bulging of the splenic capsule due to subcapsular hemorrhage and there are some lobulations on its inferior medial surface. Two tears in the capsule are present from which the spleen appears to have been bleeding. One is over the superior surface and is 6 cm. by 2 cm. and the other is a small tear on the anterior surface 1½ cm. in diameter. On cut section through the spleen a hematoma is seen extending from the internal substance of the spleen to the larger torn surface. This is a dark reddish brown hematoma and is approximately 5 cm. in dimeter. No other pathologic condition is noted and the Malpighian bodies and trabeculations are not unusual. The cut surface has a dark purplish red to gray appearance.

Microscopic studies reveal a splenic architecture. In some sections the sinusoids are dilated, distended, filled with red blood cells and varying numbers of polymorphonuclear leukocytes. The endothelium of the sinusoids is somewhat swollen while other areas show typical laceration of the spleen with associated hemorrhage. In one or two areas, thrombosis of the splenic vessels may be noted and the Malpighian bodies are small and poorly defined from the surrounding cellular pulp.

Diagnosis was laceration and hemorrhage of the spleen associated with thrombosis of splenic vessels.

DISCUSSION

An investigation was begun to determine the cause of rupture. The spleen either must have had a pathologic condition or had received sufficient trauma to cause rupture. A brief survey of the literature revealed that the most common pathologic condition found in spleens which rupture is malaria.[1, 2] The malarial spleen that has ruptured is enlarged with tears on the surface of the spleen and with hemoperitoneum. Microscopically there is interstitial hemorrhage with occasional thrombosis and infarcts. Interstitial subcapsular hemorrhage and infarction result from endothelial swelling and subintimal infiltration in small veins. Since this description fits the pathologic picture found in the case being presented, this possibility was investigated further. The patient denied ever being out of the country or living in the Southern states and she had had no previous chills or fever. She had been examined on several occasions recently and no splenomegaly was found. Giemsa stains for the parasites were done on the specimen removed and blood smears with Wright's stain on circulating blood were done. Both were negative. A rupture of the spleen also may occur in infectious mononucleosis.[3] In this case, however, no atypical lymphocytes commonly seen in infectious mononucleosis were seen and the heterophile agglutination was reported as 1 to 4.

Upon close questioning of the patient after the operation, she stated she collapsed twice on the morning of admission. The first time she fell across the bed but did not lose consciousness. Her second fall occurred in the kitchen but she did not strike her side, chest or abdomen. She did lose consciousness at that time. It is possible that either of these falls could have damaged the spleen but the normal spleen usually can withstand this amount of trauma. Another confusing observation is that the patient was suffering from epigastric distress long before she received her falls and following the operation she has been completely relieved.

In conclusion it is again emphasized that this patient does not with certainty represent a case of spontaneous rupture of the spleen. It is probably traumatic and it illustrates the difficulty encountered in these cases.

SUMMARY

A case is reported of a 30-year-old white woman who complained of a vague epigastric sensation of fullness for four months. She was adequately studied with chest plate, x-rays of the gastrointestinal tract, cholecystograms and physical examination without a diagnosis being made. She was operated upon with a diagnosis of a ruptured ectopic pregnancy. At operation a ruptured spleen and hemoperitoneum were found. This was removed and postoperatively the patient did well. She was discharged thirteen days after hospital admission. Since that time she has been completely asymptomatic. In an attempt to determine the etiology of this condition blood smears, Wright stains, Giemsa stains on the spleen and heterophile agglutinations were reported as negative. It was never determined exactly why the spleen ruptured but the problems presented in diagnosis were numerous.

925 Argyle Building.

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AUREOMYCIN YIELDS GOOD RESULTS AGAINST PARASITIC INFESTATION

Chronic infestation by the parasite that causes amebic dysentery is relieved by aureomycin, the new antibiotic drug, according to an article in the April 8 *Journal of the American Medical Association.*

Twenty-seven of a group of 38 patients treated with aureomycin were cured, says Dr. John Davis Hughes of the University of Tennessee College of Medicine, Memphis.

Practically all others of the group had great relief from symptoms of the disease, according to Dr. Hughes.

All 38 patients had been treated repeatedly for the disease with other drugs which failed to achieve satisfactory results.

Numerous persons in this country are infested with the parasite. Although some carriers have fatigue, nervousness and recurring diarrhea, others show no symptoms.

THE SUPRACONDYLOID PROCESS OF THE HUMERUS

C. M. WITT, M.D.
ST. LOUIS

THE SUPRACONDYLAR process is an anomalous bony spur which extends downward and anteriorly from the medial aspect of the lower third of the humerus in approximately 1 per cent of all people of European ancestry.[1] Its true nature and significance are not always recognized when it is discovered either clinically or by x-ray. For that reason this paper is presented to discuss its "normal" and pathologic aspects, as well as to present two additional cases of this condition.

Since the discovery of this anomaly by Tiedmann in 1822,[2] it has interested principally the anatomists,[3, 4] who have long recognized its nature and variations, and the anthropologists who have been concerned with its incidence.[1, 2, 5] The supracondyloid process itself, also called the supracondylar, epicondylic or supraepitrochlear process, is a smooth bony spur which extends downward and anteriorly from the medial aspect of the humerus. It may be up to 2 cm. in length, and usually originates about 5 centimeters above the medial epicondyle. It usually is joined by a fibrous band which extends downward from its tip to the medial epicondyle. Through the fibrocalcific foramen thus formed the median nerve usually passes, often accompanied by the brachial artery and, occasionally,

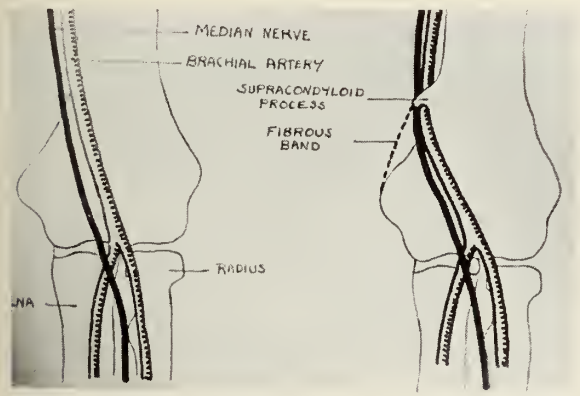


Fig. 1. Diagram showing the normal relationship of brachial artery and median nerve on the left, and their passage through the anomalous foramen when the supracondyloid is present as illustrated on the right.

the radial or ulnar arteries. From this bridge the pronator teres muscle often arises, and the coracobrachialis muscle may infrequently insert here.[5] (fig. 1).

The process is the homologue of the bony canal found in many primitive mammals and marsupials. Carnivores, such as the cat, and lower primates, such as lemurs and tarsies, have such a canal.

The process usually is discovered either clinically by the discovery of a hard lump in the soft tissues of the medial side of the upper arm, or in the course of x-ray examination for other pathologic condition.[6] Its true nature should be apparent immediately, although it is sometimes mistaken for an osteoma, osteochondroma or, occasionally, for a giant cell tumor. Its margins are usually smooth, with well developed cortex, although the tip may be roughened where the fibrous band is attached. Often it is bilateral, so x-ray examination of the opposite arm will confirm the presence of an anomaly rather than a tumor.

Fractures of the process are uncommon, but do appear in the literature on occasion. Treatment is



Fig. 2. (Case 1, R.C.) Roentgenogram of the left arm showing the long supracondyloid process which was removed surgically.

variable, both conservative therapy[7] and excision of the spur following fracture[8] having been reported favorably. The persistence of pain, following trauma to the lower humerus, and in the absence of other demonstrable fracture, might warrant a search for a process which might only be seen with oblique x-ray views of the lower humerus. The routine views can mask the process by the overlying shadow of the medial cortex of the bone. Rarely, the process becomes painful due to repeated trauma, insufficient to produce a demonstable fracture, as will be illustrated in case 1.

In view of the fact that the median nerve traverses the anomalous foramen, a syndrome consisting of median nerve symptoms may occur. This manifests itself by hypesthesias and paresthesias of hands and fingers in a median nerve distribution. Several cases are reported in European literature which have been cured by resection of the process. Barnard and Murray report three cases, one of which had no symptoms, one had mild symptoms which were relieved by symptomatic treatment, and a third which presented severe median nerve symptoms and which was completely relieved by operative removal of the process.[9]

Two cases are presented here, in one of which a resection of the process was done because of symptoms.

CASE REPORTS

Case 1. R.C. The patient was a 7 year old girl whose general health was excellent. Two weeks before admission to the hospital she noted a painful hard swelling on the medial aspect of the upper arm, about one inch

above the cubital fossa. Pain was experienced also on movement of the elbow. X-ray examination of the left elbow region showed a supracondyloid process measuring 1.5 cm. in length, with a broad base 1cm. in width, extending more than 1 cm. anteriorly into the soft tissues of the lower arm (fig. 2.) The opposite arm was not x-rayed, but no process could be felt on palpation.

At operation the process and its fibrous band, which extended from the tip to the medial epicondyle, were found. The median nerve and brachial artery ran through the foramen formed. The process was removed completely by rongeur. The postoperative course and



Fig. 3. (Case 2, G.P.) Oblique roentgenograms of both arms showing the supracondyloid processes. These were assymptomatic.

subsequent follow-up (five months) show complete alleviation of the previous symptoms.

Case 2. G.P. The patient was a 5 year old girl who was hospitalized for poliomyelitis, which involved both arms and legs. During the course of the disease she lost a great deal of weight and, during one of the physical examinations, hard swellings were discovered on the medial aspects of both upper arms, just above the antecubital fossae. There were no symptoms due to these. X-ray examinations of both arms showed typical small supracondyloid processes, that on the left about 8 mm. in length, that on the right 5 mm. in length (fig. 3). Since this was recognized as a congenital anomaly, no treatment was indicated or given.

CONCLUSIONS

1. The supracondyloid process is an anatomic variant or anomaly which occurs in approximately 1 per cent of all persons of European ancestry.

2. It should be differentiated from bony tumors such as osteoma or osteochondroma.

3. It is occasionally fractured and responds to either conservative or radical (excision) therapy.

4. Its relationship with the median nerve sometimes gives rise to symptoms of median nerve injury, which are relieved by excision of the process.

5. Two cases are presented, in one of which operation was deemed necessary, and which was followed by complete alleviation of the symptoms of local pain.

508 N. Grand Ave.

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BEWARE OF TICKS THIS SPRING, AMERICAN MEDICAL ASSOCIATION SAYS

From now throughout the summer, ticks in certain areas of the United States will carry Rocky Mountain spotted fever, says an editorial in the April 15 *Journal of the American Medical Association.*

The mortality of the disease throughout the nation averaged 23 per cent in 4,033 cases reported during the period 1939-1946, the editorial points out. Fortunately, two of the newer antibiotics, aureomycin and chloromycetin, give promise of being effective in treatment of Rocky Mountain spotted fever.

The important foci of the infection are Wyoming, Montana, Colorado, Virginia, Maryland and North Carolina, according to the editorial. In the West, the majority of cases appear between April and June, and in the East, during July and August. Throughout the nation, more cases occur during July than in any other month.

Many cases occur in persons seeking recreation and on vacation in rural or suburban areas, the editorial says. Rocky Mountain spotted fever is characterized by a high fever, muscle pains and a red, spotted rash. Protection against infection lies in preventing the attachment of a tick to the skin. High boots, leggings or socks worn outside the trousers hinder the tick from attaching itself to the leg. If there are no openings in the clothing, however, the tick will crawl up and attach itself on the neck.

In tick-infested country one should pass the hand frequently over the back of the neck and behind the ears to remove ticks that may not yet be attached to the skin. After becoming attached, ticks seldom transfer the infection until they have fed on the victim for several hours. Therefore, inspection of the body and clothing twice daily when in tick-infested country usually is sufficient.

A tick attached to the skin should be removed immediately and as gently as possible. If the tick is pulled off with the fingers, it should be handled with a small piece of paper and the abrasion should be touched gently with a disinfectant such as iodine or gently washed with soap and water.

Vaccines have definite protective value for a period of less than a year, the editorial says. Tourists who go to areas where the infection is present and persons who live in areas where the infection is highly virulent should be vaccinated.



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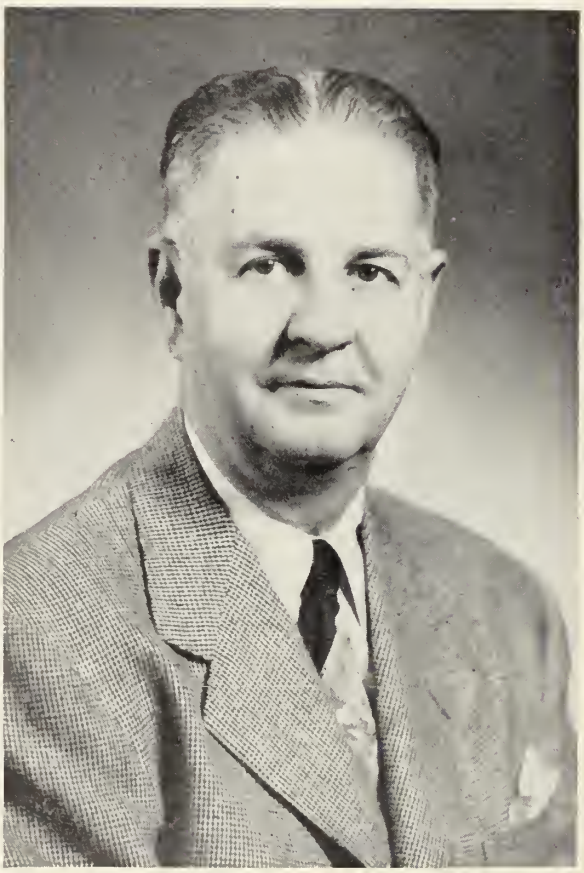
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PRESIDENT'S PAGE

The following release was received in the office of the Association on May 18 from the Publicity Division, Democratic National Committee, 1200 18th St., N.W., Washington, D. C. Copies of the booklet referred to may be obtained from that address. The entire release is published for information of members.

"A booklet explaining the Democratic Party's national health program is being distributed to Party leaders all over the country, Wm. M. Boyle, Jr., Chairman of the Democratic National Committee, announced today.



"The thirty-two page green and white booklet is entitled 'Better Medical Care That You Can Afford.'

"The booklet points out that the program advocated by the President and the Democratic National Committee calls for:

"(1) More medical education; (2) More medical research; (3) More hospitals and health centers; (4) More local public health work; (5) More health protection for babies and children; (6) Application of the insurance principle to spread the cost of medical care and keep unexpected illness from becoming a financial disaster to millions of Americans.

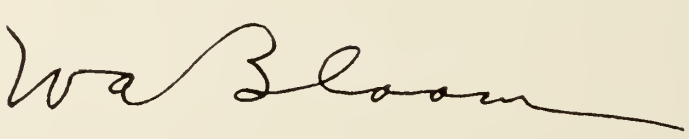
"The booklet makes it clear that the balanced program, embodied in pending legislation and in proposals advocated by the President, Federal Security Administrator Oscar Ewing, Administration leaders and Democrats in the House and the Senate, is NOT, as opponents have sometimes charged, 'Socialized medicine.'

"The booklet also makes it clear that the patient would be free to choose his own doctor and the doctor would be free to accept or reject new patients and that the program would be locally administered.

"In announcing the distribution of the booklet, Chairman Boyle said:

" 'This inexpensive, factual presentation of the health program of the Democratic Party is deliberately devoid of the emotional arguments and of the distortions used by opponents of the measure in their multi-million dollar campaign of opposition. It reflects our confidence that the people are more interested in facts than in name-calling when they make up their minds on this important issue which affects every American citizen.'

"The booklet is attached."



Editorials

MENTAL HEALTH CLINICS

Data on mental health clinics existing in 1947, the year the National Mental Health Act became effective, have been compiled and will be used as a baseline in measuring the effect of the federal legislation on the future growth of mental health services, according to a recent report by the United States Public Health Service.

The report shows that, in all states and territories, there were 485 clinics in operation in 1947. Of the stationary clinics, only 221 were full time, providing an average of forty-one hours of service a week to the communities in which they were located; 182 were part time, with an average of eight hours of service a week. There also were eighty-two traveling clinics, giving an average of three hours of service to 739 communities. Some of the traveling clinics, such as the one maintained by the New York City Board of Education, operated in only one city but served several neighborhoods. At the other extreme, one traveling clinic, in Delaware, visits all the public schools in the state.

No clinical services were available in Idaho, Wyoming, Nevada, Utah, South Dakota, Alaska and the Virgin Islands. New York headed the list with ninety-five clinics. Only eight states had as many as twenty clinics, Illinois, Michigan, Ohio, Pennsylvania, New Jersey, Massachusetts and California. The Middle Atlantic and East North Central States had 58 per cent of all clinics in the country. Missouri had nine clinics, four in general hospitals, one Veterans Administration, one sponsored by a Community Chest, one independent, one sponsored by a medical school and one by another college.

That mental and emotional disorders are recognized generally as a medical problem is indicated by the fact that 62 per cent of these clinics were conducted by hospitals or by public health departments. About 100 operated independently, many of them being financed through Community Chests. The remainder were operated in connection with public schools, courts, colleges and medical schools, or by departments of public welfare. Of the 411 clinics that reported the types of patients they served, ninety-three were limited to children, seventy-one to adults and 247 served all age groups.

Need for an annual census, including exact information, which is not now available, about the numbers and types of cases and services, is stressed, at is should be, in the report.

HOSPITAL SERVICE

A peacetime record in the number of registered hospitals in the United States and hospital service rendered is shown by the 29th Annual hospital service report of the Council on Medical Education and Hospitals of the American Medical Association. An important factor in producing this growth of hospital service reported for 1949 has been the rapid spread of voluntary hospitalization insurance.

Nongovernment hospitals furnish the main portion of hospital service, the report shows. Of the total number of patients admitted in 1949, 12,401,188 were in nongovernment hospitals and 4,258,785 in hospitals operated by the federal, state or local governments.

Hospitals operated by nonprofit associations cared for more patients during 1949 than did hospitals administered by any other type agency. These include the church related hospitals, with 4,758,992 admissions, and other nonprofit association hospitals with 6,089,085. Proprietary hospitals ranked second with 1,553,111 admissions. Federal and city hospitals ranked third and fourth with 1,190,285 and 1,164,096 admissions, respectively.

During 1949 one patient was admitted to a hospital in the United States every 1.9 seconds and a live baby was born in a hospital every 11.2 seconds. Births in 1949 totalled 2,820,791, a figure more than the 1948 total of 2,794,281 but below the all time record of 2,837,139 in 1947. General hospitals had 15,450,311 admissions in 1949.

The mental hospitals, with a total of 705,423 beds, had 308,055 admissions, or 1.8 per cent of all patients admitted in 1949, and an increase of 3,055 admissions over 1948. The 1948 increase over 1947 was 13,046. The 1947 increase over 1946 was 20,745. However, the daily patient load in mental hospitals for 1949 is the highest average that has been recorded in this field. The current total is 675,096, compared with 664,399 in 1948 and 590,712 in 1940, a new gain of 10,697 occurrence in the last year, practically all in the government group. The nongovernment mental hospitals had an average daily patient load of 16,451, whereas the government group reported 658,645, including 572,280 in state institutions. Approximately one out of every two beds occupied in all registered hospitals and two out of every three beds in government hospitals were filled by mental patients in 1949, the report shows.

An increase in tuberculosis hospitalization is apparent from the report of a total of 113,078 admissions in the tuberculosis sanitoriums, as compared with 105,588 in 1948.

The enormous volume of service rendered by hospitals in the United States is likewise reflected in the daily patient load, which averaged 1,224,951 in 1949, exclusive of newborn babies. Compared with 1948, the daily census shows an increase of 7,797.

There was a reduction in the overall hospital occupancy rate from 85.5 to 85.1 per cent. The rate in the government hospitals increased, however, from 89 to 89.3 per cent, whereas the average occupancy in the nongovernment group was reduced from 76.7 to 74.7.

Organization and Economics

NEWS NOTES

Charles A. Brasher, M.D., Mount Vernon, was elected president of the Missouri Chapter of the American College of Chest Physicians at a meeting held in St. Louis during the Annual Session of the Missouri State Medical Association.

Milton N. Casebolt, M.D., Kansas City, was elected president-elect of the Missouri Academy of General Practice held in Springfield April 27. Robert C. McElvain, M.D., St. Louis, was installed as president.

George W. Blankenship, M.D., Anderson, was elected a member of the Anderson board of education on April 2.

William C. Mixson, M.D., Kansas City, was a guest speaker at a meeting of the Oklahoma Academy of General Practice on March 27 and 28 and spoke on "Problems in the Early Diagnosis of Cancer of the Uterine Cervix" and "The Management of Bleeding in Late Pregnancy."

August A. Werner, M.D., St. Louis, was the guest speaker on Premedical Day at the University of Arkansas on April 14. He spoke on "Recent Developments in Endocrinology."

Robert M. Myers, M.D., Kansas City, spoke at a meeting of the Phalanx fraternity of Lincoln Junior College April 16 on "Preparation for Married Life."

David Littauer, M.D., Kansas City, was elected second vice president of the Missouri Hospital Association at a meeting held in Kansas City on March 13.

L. R. McIntire, M.D., St. Charles, spoke at a P. T. A. meeting in St. Charles on April 13 on the "Summer Health Round-Up of Children."

A. Graham Asher, M.D., Kansas City, spoke before a group of eye, ear, nose and throat physicians on April 18 at the University of Kansas Medical Center on "Cause of Heart Trouble in the Medical Profession."

F. Garrett Pipkin, M.D., Kansas City, was elected president of the Association of Bone and Joint Surgeons at a meeting in Lincoln, Nebraska, April 14 and 15.

Charles F. Grabske, M.D., Independence, gave the address at the commencement exercises of the School of Nursing of the Independence Sanitarium and Hospital on April 2.

Ira C. Layton, M.D., Kansas City, discussed "Diabetes Mellitus" at a meeting of the Miami County (Kansas) Medical Society at Paola, Kansas, on April 21.

A. M. Estes, M.D., Cape Girardeau, was elected president of the Missouri Heart Association at its annual meeting in Jefferson City on May 3. Julius Jensen, M.D., St. Louis, was elected president-elect; E. Lee Shrader, M.D., St. Louis, vice president, and Drew Luten, M.D., St. Louis, a member of the board of trustees.

E. Lee Dorsett, M.D., St. Louis, was a guest speaker before the section on obstetrics and gynecology of the Mississippi State Medical Association in Jackson, Mississippi, May 10, and spoke on "Unusual Complications in Obstetrics."

MUSINGS OF THE FIELD SECRETARY

The Missouri State Chamber of Commerce held its annual convention in Jefferson City on April 19. Private enterprise versus government in business as a theme permeated the entire program.

Dr. Ralph J. Gampbell, a self exiled English physician, now taking additional training in San Francisco, appeared as one of the main speakers at the banquet. Some 250 people heard Dr. Gampbell give a first hand picture of the English National Health system in operation. As a result of this talk, it is doubtful if any of those present favor the adoption of such a pattern in this country. Dr. Gampell was sponsored on this occasion by the American Medical Association Educational Campaign with arrangements made by the Missouri State Medical Association.

The year's annual meeting of the State Chamber of Commerce gave concrete evidence of that organization's value as a bulwark for private enterprise.

The Woman's Auxiliary to the Buchanan County Medical Society is initiating the health forum idea in St. Joseph. A forum "kick-off" tea was held at the Hax Art Center on April 20 to which representatives of the various women's clubs in St. Joseph were invited. The main objective of this tea was to present the idea of the "free" health forum to bring health information to the lay public through talks by medical speakers. Following the presentation of this idea, Fred H. Lundgren, Jr., M.D., Kansas City, talked to the capacity audience in the Art Center auditorium on "These Are the Facts—for Women Over Thirty." The first evening health forum meeting was set for some time in May

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with Graham Asher, M.D., Kansas City, speaking on "Preserving the Business Man's Heart."

Approximately 150 general practitioners and guests attended the second annual meeting of the Missouri Academy of General Practice in Springfield on April 27. The comments overheard as to the tenor of the meeting were most favorable. The afternoon scientific program was acclaimed as most practical and "right down to earth." Dr. R. B. Robbins, National Democratic Committeeman from Arkansas, revealed in an impressive fashion efforts that are being made by those hoping to saddle a compulsory national health scheme on the American people.

The scientific program was as follows: E. Lee Dorsett, M.D., St. Louis, "Postpartum Hemorrhage"; H. R. McCarroll, M.D., St. Louis, "Orthopedic Problems in General Practice"; J. William Thompson, M.D., St. Louis, "Pitfalls in Abdominal Surgery," and G. Wilse Robinson, Jr., M.D., Kansas City, "Psychosomatic Disorders."

DEATHS

Schaefer, Edward H., M.D., Sedalia, a graduate of the University Medical College of Kansas City, 1892; honor member of the Pettis County Medical Society; aged 83; died February 5.

Weaver, John S., M.D., Kansas City, a graduate of the University of Illinois College of Medicine, 1897; honor member of the Jackson County Medical Society; aged 78; died March 13.

Brown, James M., M.D., St. Louis, a graduate of St. Louis University School of Medicine, 1916; member of the St. Louis Medical Society; aged 56; died March 22.

Blue, Arthur B., M.D., Hannibal, a graduate of Central Medical College of St. Joseph, 1904; honor member of the Marion-Ralls County Medical Society; aged 81; died March 25.

Burgher, Arthur E., M.D., St. Joseph, a graduate of Keokuk Medical College, 1902; honor member of the Buchanan County Medical Society; aged 73; died April 2.

Lamb, Harvey D., M.D., St. Louis, a graduate of Washington University School of Medicine, 1910; Fellow of the American Medical Association; member of the St. Louis Medical Society; aged 67; died April 6.

Prather, Roy W., M.D., Excelsior Springs, a graduate of the University Medical College of Kansas City, 1909; member of the Clay County Medical Society; aged 68; died April 12.

Toothaker, Wayne M., M.D., St. Joseph, a graduate of St. Louis University School of Medicine, 1940; Fellow of the American Medical Association; member of the Buchanan County Medical Society; aged 36; died April 14.

Newkirk, Richard C., M.D., Joplin, a graduate of the University of Louisville School of Medicine, 1921; Fellow of the American Medical Association; member of the Jasper County Medical Society; aged 57; died April 14.

POLIOMYELITIS PROBLEM IN MISSOURI

The Missouri State Medical Association is taking an active part in laying plans for handling an outbreak of poliomyelitis in this state if such should occur this year. The Association was well represented at a planning meeting on May 1 in Jefferson City, called by Buford G. Hamilton, M.D., Director, Division of Health. Representatives of ten organizations and groups directly concerned with poliomyelitis on a state-wide basis attended this meeting and approved a special committee report setting forth certain principles for handling the disease.

In approaching this problem two needs are most evident—the need for cataloging of personnel in the state qualified to handle poliomyelitis cases—the need for classification of primary and secondary centers of treatment. To meet these initial needs, Dr. Hamilton appointed a special committee to survey the state in regard to professional personnel and hospital facilities as rapidly as is feasible.

EMERGENCY MEDICAL SERVICE

The sixth semiannual meeting of the Council on Emergency Medical Service of the American Medical Association was held in Chicago on May 6 at the American Medical Association headquarters. The following members of the Missouri committee attended: Robert Mueller, M.D., St. Louis, chairman; Carroll Hungate, M.D., Kansas City; J. E. Schiffmacher, M.D., Kansas City; A. S. Bristow, M.D., Princeton.

The meeting was devoted to explanations of emergency disaster plans now in effect or being formulated by various state or county medical societies. Round table discussions were presented on civil defense and on the part that state and county medical societies can play in the program of the National Security Resources Board. Dr. Norvin C. Kiefer, Health Resources Division, National Security Resources Board, was moderator of the civil defense discussion, and Mr. Theodore Wiprud, Executive Secretary of the Medical Society of the District of Columbia, was moderator of the second panel.

SURVEY OF PHYSICIANS' INCOMES

The Department of Commerce and the American Medical Association are jointly conducting a nationwide survey of the economic status of physicians. George F. Lull, M.D., Secretary of the American Medical Association, has sent the following explanation to all state and county secretaries:

"I am enclosing herewith marked copies of the questionnaires being used in the survey of physicians' incomes—a joint undertaking of our Bureau of Medical Economic Research and the United States Department of Commerce.

"1. The white questionnaire is the short-form (only 1949 income) schedule which is being sent to 100,000 physicians and for which there will be no follow-up.

"2. The buff colored questionnaire is also the short-form schedule and is being sent to 10,000 physicians with his code number of the Bureau of Medical Economic Research on the outside of the return envelope. The sole purpose of the code number is to enable the Bureau to address follow-ups to those physicians who do not reply to the first, second or third request. An attempt will be made to obtain replies from all physicians who receive the buff colored questionnaire.

"3. The green questionnaire is the long-form schedule (that is, it requires more information and for four more

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years, 1945-48) which is being sent to 15,000 physicians with his code number of the Bureau of Medical Economic Research on the outside of the return envelope. Again, the sole purpose of this code number is to enable the Bureau to address follow-ups to those who do not reply to the first, second or third request. Also, an attempt will be made to obtain replies from all physicians who receive the green colored questionnaire.

"I thought it would be helpful for you to have a copy of each of these three schedules because you may be asked about them. You understand that no physician will get more than one of these three schedules. Furthermore, approximately three physicians out of eight will receive none.

"I hope that you will urge physicians in your society to fill out these schedules which have been prepared by our Bureau of Medical Economic Research and the Department of Commerce. This study bids fair to become the most comprehensive ever made of the incomes of a profession. I hope that you will especially urge your members with small practices to reply in full, as I am informed that earlier surveys of physicians' incomes have not obtained a representative number of responses from physicians with small practices. A fine response from every physician who receives a questionnaire will help to correct certain misinformation regarding physicians' earnings and expenditures by the American people for the services of physicians."

MISSOURI HEALTH COUNCIL

Four hundred people representing all sections of the state attended the second annual state-wide health conference, sponsored by the Missouri Health Council at the Governor Hotel, Jefferson City, on May 11. The theme of the conference was "Community Responsibility for Better Health." Haven Emerson, M.D., New York City, appearing on the program under the auspices of the National Health Council, developed this theme in a most clear cut, down-to-earth and effective manner. He emphasized repeatedly the need and desirability of local areas establishing, maintaining and financing their own local health departments. In this respect he pointed out the large brokerage fee involved in the tax cost when financial aid is sought from the state and federal governments. He explained the difference between the terms preventive medicine, medical care proper and public health services. It was his conviction that all practicing physicians in taking care of their individual patients did much in preventive medicine as well as administering what is termed strictly medical care.

Dr. Emerson said a public health department is concerned not with the individual's health as such but with the social aspects of an individual's health. Why does this person have typhoid fever? Where did he get it? What is the carrier? How may others be protected against it? These are the social aspects of a disease posing a public health problem.

Dr. Emerson pointed out that the following six functions are generally accepted as those properly defined as services of a public health department: (1) vital statistics, (2) communicable disease control, (3) environmental sanitation, (4) public health laboratory services, (5) maternity and child hygiene, (6) public health education. To afford, and make practical, health services of this nature, it will require in many instances multiple local governmental units functioning together. This is necessary to secure a broad enough tax base and a sufficient population area to justify and support the services, he said.

He also explained how valuable county and local health councils can be in promoting ways and means of solving their own health problems by securing community cooperation and stimulating local initiative.

During the morning session, Buford G. Hamilton, M.D., Director, Missouri Division of Health, addressed the conference on "Public Health and the Practicing Physician." He explained how work of a public health department should dovetail with that of the practicing physician and how necessary such cooperation is today when one considers the many health problems which affect both the individual and society as a whole. Dr. Hamilton briefly discussed plans whereby the medical profession of the state through its State Medical Association and the Missouri Division of Health, working together, may see that those needing health services and unable to pay for such are taken care of.

The afternoon session of the conference was given over to a panel discussion on Missouri local health councils, their functions, problems, virtues and shortcomings. Questions from the floor made this part of the program quite valuable.

An address of welcome from Governor Smith was delivered by the executive secretary, Mr. James Kirkpatrick.

AUDRAIN COUNTY HOSPITAL SUIT

The court test to determine whether or not osteopaths have the right to practice in tax supported institutions began in Mexico on May 10. Judge Sam C. Blair, Jefferson City, is presiding in the case.

The attorney for the board of trustees of the Audrain County Hospital, George P. Adams, Mexico, presented the case of the board. As previously reported, the board has excluded osteopathic practitioners from practicing in the hospital since 1940. Because the osteopaths and their patients have claimed the board was discriminatory in this action, the board filed suit in the Audrain County Circuit Court asking for a declaratory judgment which would clarify the situation for the board.

Attorneys for the Missouri State Medical Association in replying have asked the court to define osteopathy and also have asked the court to uphold the right of the trustees of the Audrain County Hospital to decide who shall be able to practice in the Audrain County Hospital. Osteopaths who have testified in the case have admitted that they practice medicine and surgery in addition to osteopathy.

The trial was recessed until May 31, 1950. The balance of the presentation of the Association's position as well as the osteopath's side of the case will be heard at that time.

An account of the trial which appeared in the *Mexico Evening Ledger*, May 11, 1950, follows:

"An osteopathic move to end the court test on whether they are entitled to county hospital practice failed in the Audrain County Circuit Court late Wednesday afternoon, and the trial of the hospital case continued Thursday before Sam C. Blair of Jefferson City, special judge.

"The osteopathic move to cut off the test case brought by Audrain hospital trustees came as the trustees' case was concluded by George P. Adams. Roy D. Williams

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of Boonville, osteopathic attorney, asked the court to dismiss the suit.

"Judge Blair denied the motion, and the hearing moved on. After the presentation of the trustees' case came the presentation of evidence by Lawrence Bradley of Kennett, MD attorney.

"Adams presented witnesses to establish that a controversy has existed ever since the 1940 order of the Audrain hospital trustees excluding osteopaths from practice in the hospital. Trustees testified they made the order following an attorney general's opinion, in an attempt to abide by the state laws.

"Eight Audrain osteopaths paraded across the stand, each in varying terms labelling the trustees as discriminatory, arbitrary, unfair, autocratic, and 'should be replaced.' Adams sought to show by the testimony that a justifiable controversy existed, despite pleadings by the osteopaths in the case that there was no controversy for the court to determine.

"In answer to his questions, osteopaths said their state and county associations had a policy of opposing any building of added hospital facilities in county hospitals where DOs were excluded.

"Cross-examining the osteopaths for the MDs, Bradley asked each about their use of drugs, narcotics and surgery, in addition to manipulative therapy. Cross-examination by Williams, osteopath attorney, asked the osteopaths about their training in use of drugs and surgery.

"Adams entered in the record a number of public statements by osteopaths, in which the trustees' action was termed discriminatory, unfair, and illegal to establish for the court the fact that a controversy exists, requiring legal determination.

"Dr. J. R. Dougherty of Vandalia, secretary of the Audrain County Osteopathic Society, was asked if a number of statements issued and published over his signature reflected the opinions of the society. He said they did. Asked if he had written them, Dr. Dougherty said they were 'sent out by the state association; prepared, I think, by the public relations chairman of the association.'

"MDs, who were named defendants by the trustees along with the DOs and their state associations, followed Adams with the opening of their evidence, which continued Thursday morning.

"Lawrence Bradley of Kennett, MD attorney, said in his opening statement their case would show that 'under the law osteopaths are not entitled' to practice medicine and surgery, use drugs and narcotics and operate with instruments.

"The words of the late Andrew T. Still went into the record for more than an hour, as Bradley read from the autobiography, published in 1908, of the man known as the founder of osteopathy and founder of the College of Osteopathy at Kirksville, Mo.

"Bradley sought to show from the writings of Still, and others, that osteopathy as defined by its founder and the school excluded the use of drugs and surgery.

"Major points in the case hinge on interpretation of two state laws, one defining and licensing osteopathy, the other the county hospital law barring discrimination against any 'school of medicine.' Bradley said in his opening statement that the reference at the time the law was passed, in 1917, was to the then contending allopathic, homeopathic and electric schools of medicine.

"The osteopathic case will be presented after the MD case."

NEW MEMBERS

Abrams, Bernard S., St. Louis, St. Louis M. S.
Ashley, Thomas E., Jefferson Barracks, St. Louis Co.
Boles, Clifford Read, Clayton, St. Louis Co.
Brooks, Clifton R., St. Louis, St. Louis M. S.
Cheeseman, William B., Kansas City, Jackson Co.
Donley, Leo F., Jr., St. Louis, St. Louis Co.
Draney, Thomas E., Kansas City, Jackson Co.
Enna, Carl, Kansas City, Jackson Co.
Evans, Fred L., St. Louis, St. Louis M. S.
Fisher, Edward H., North Kansas City, Clay Co.
Gnade, Albert J., St. Louis, St. Louis M. S.
Hawk, Bray O., St. Louis, St. Louis M. S.
Houston, Vincent T., St. Louis, St. Louis M. S.
McDonald, John J., St. Louis, St. Louis M. S.
Mach, Robert E., St. Louis, St. Louis M. S.
Muenster, Joseph J., Jr., St. Louis, St. Louis M. S.
Paddock, Charles S., Joplin, Jasper Co.
Palazzo, Frank A., St. Louis, St. Louis M. S.
Schmidt, Edwin H., St. Louis, St. Louis M. S.
Smith, Ira T., Kansas City, Jackson Co.
Venable, Howard P., St. Louis, St. Louis M. S.
Vigo, Anthony W., Lemay, St. Louis Co.
Wilson, Alice H., Joplin, Jasper Co.
Wilson, Joseph N., St. Louis, St. Louis M. S.
Wissmath, Frank S., Clayton, St. Louis Co.
Woolf, Ralph B., St. Louis, St. Louis M. S.

SOCIETY PROCEEDINGS

TENTH COUNCILOR DISTRICT

FRANK W. HALL, CAPE GIRARDEAU, COUNCILOR

Mineral Area County Medical Society

The regular monthly meeting of the Mineral Area County Medical Society was held on April 27 at 8:00 p. m. at State Hospital No. 2, Farmington.

E. F. Hoctor, M.D., Farmington, presented some interesting data, facts and figures concerning the number of admissions, discharges, percentage of cures, cost per patient and average length of hospitalization per patient at State Hospital No. 4. In the general discussion which followed, Dr. Hoctor stressed the need for more psychiatrists in the state institutions which are greatly understaffed at present and which would facilitate and speed up treatment, cure and discharge of patients, thereby shortening the length of hospitalization to the benefit of the patients as well as the taxpayers' pocketbooks.

A short business meeting was held.

The Society was informed by the secretary that Dr. F. W. Gale, Bismarck, had passed both his 75th birthday and his 50th year in the practice of medicine. Both Dr. Gale and Dr. A. L. Evans, Bonne Terre, received their 50 year lapel pins from the Missouri State Medical Association this year.

The following members were present: Drs. Van W. Taylor and H. M. Roebber, Bonne Terre; Ben M. Bull, Ironton; G. L. Watkins, Sr., and G. L. Watkins, Jr., James Stout, F. R. Crouch, E. F. Hoctor, Farmington; J. L. Foster, Desloge; Byron Taylor, C. H. Appleberry and P. L. Jones, Flat River.

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Personal Course in General Surgery, Two Weeks, starting September 25.
Surgery of Colon & Rectum, One Week, starting September 11.
Esophageal Surgery, One Week, starting October 16.
Breast & Thyroid Surgery, One Week, starting June 26, October 2.
Thoracic Surgery, One Week, starting June 12, October 9.
Gallbladder Surgery, Ten Hours, starting June 19, October 23.
Fractures & Traumatic Surgery, Two Weeks, starting June 12, October 9.
Basic Principles in General Surgery, Two Weeks, starting September 11.
GYNECOLOGY—Intensive Course, Two Weeks, starting June 19, September 25.
Vaginal Approach to Pelvic Surgery, One Week, starting September 18.
OBSTETRICS—Intensive Course, Two Weeks, starting September 11.
MEDICINE—Intensive General Course, Two Weeks, starting October 2.
Electrocardiography & Heart Disease, Two Weeks, starting July 17.
Gastroscopy, Two Weeks, starting July 17, September 25.
DERMATOLOGY—Formal Course, Two Weeks, starting October 16. Informal Clinical Course every two weeks.
UROLOGY—Intensive Course, Two Weeks, starting September 25.
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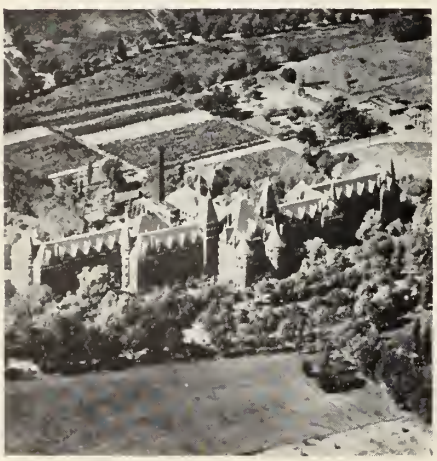
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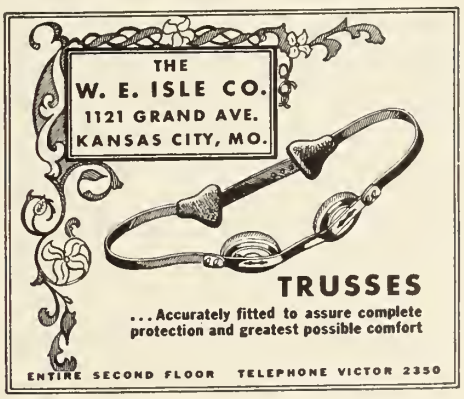
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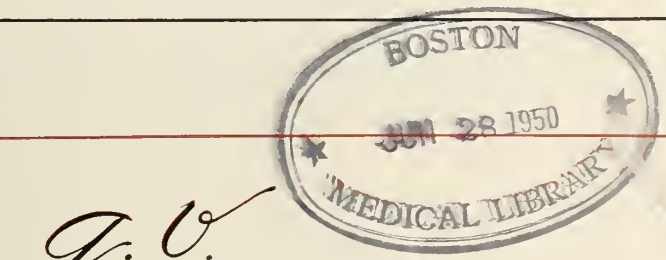
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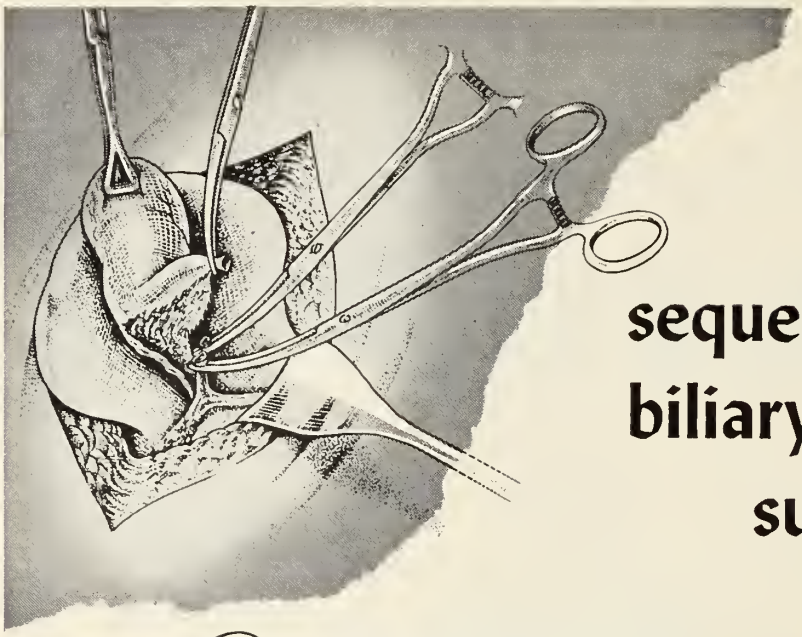
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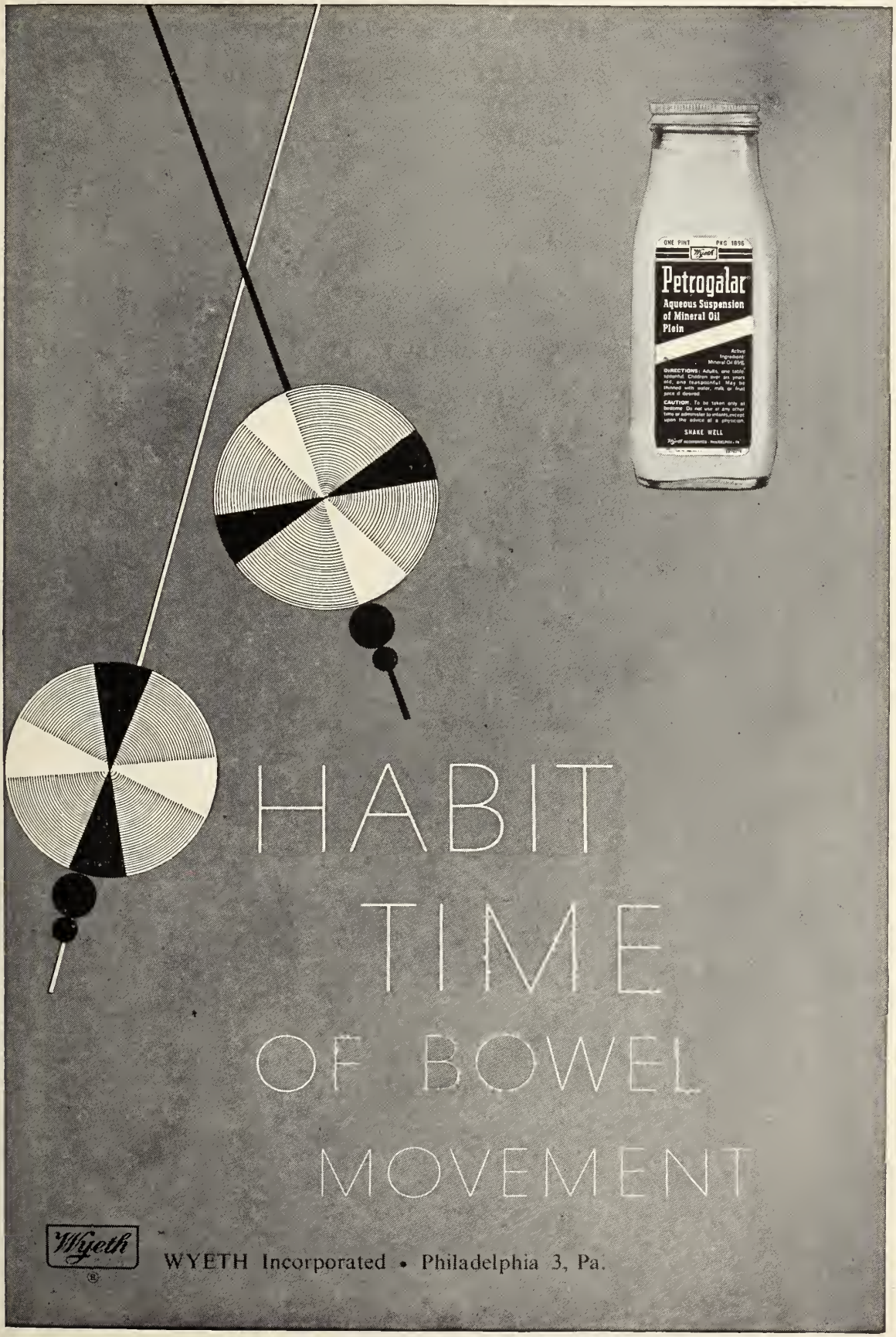
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1. Beckman, H.: Treatment in General Practice. Philadelphia, Saunders, 5th ed., 1946, 704-705.
2. Beckman, H.: Treatment in General Practice. Philadelphia, Saunders, 6th ed., 1948, 744.

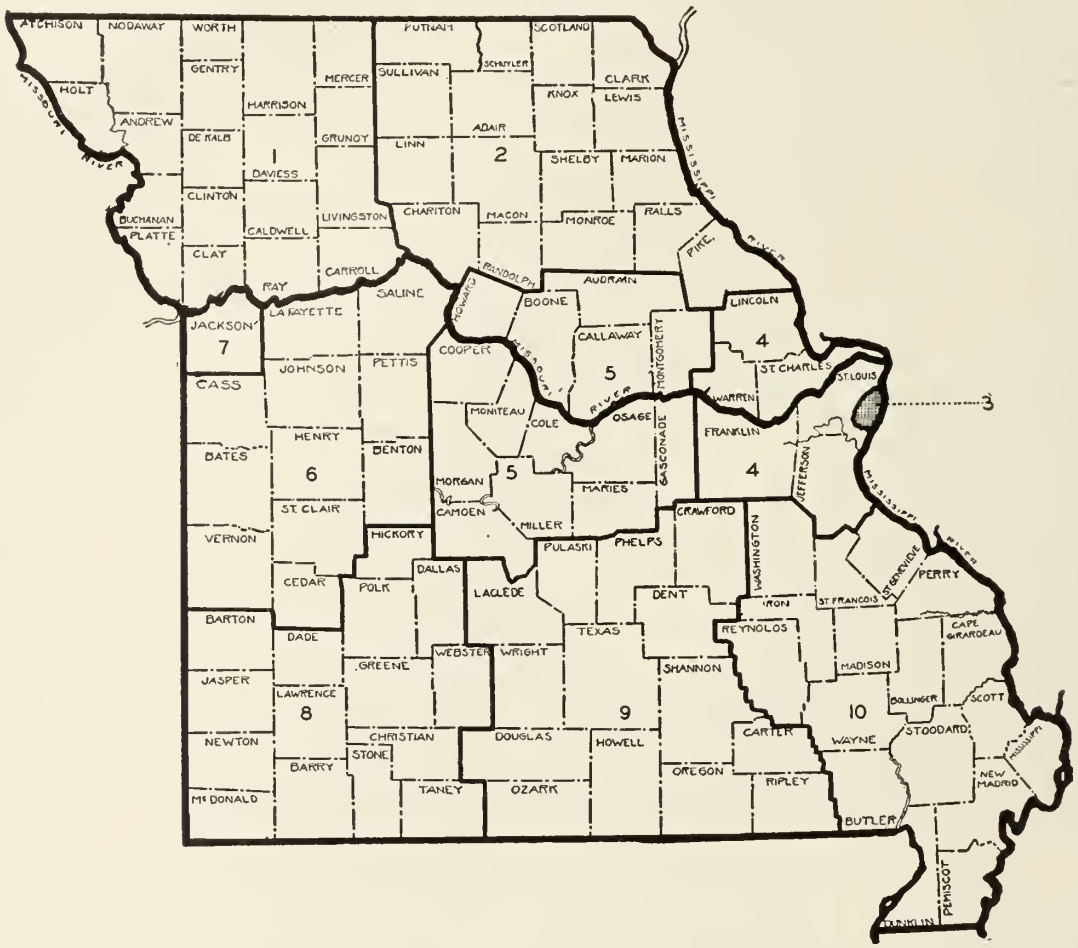
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Benton	6	T. S. Reser	Cole Camp	James A. Logan	Warsaw
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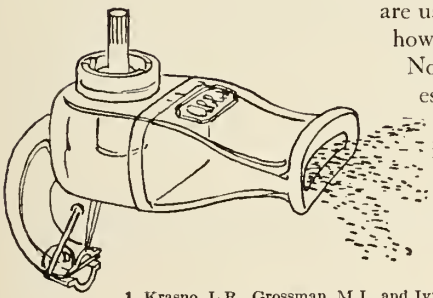
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1. Krasno, L.R., Grossman, M.I., and Ivy, A.C. (1949), The Inhalation of 1-(3',4'-Dihydroxyphenyl)-2-Isopropylaminoethanol (Norisodrine Sulfate Dust), J. Allergy, 20:111, March. 2. Krasno, L.R., Grossman, M., and Ivy, A.C. (1948), The Inhalation of Norisodrine Sulfate Dust, Science, 108:476, Oct. 29.

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"The curfew is old-fashioned," says Smiley. "We ought to be grown-up enough by now to behave like grown-ups. Seeing to it that our kids get to bed is the responsibility of each family." Then Judge Cunningham adds, "Most of us are in bed when the curfew horn blows anyway. It wakes me up just when I'm getting to sleep!"

What the Judge said was good for a laugh, but Smiley summed up how folks think in this town. We believe that the democratic tradition of "live and let live" is the only *way to live.*

From where I sit, it's not the American way to regulate your life by a horn—anymore than it's right to criticize *my* caring for a temperate glass of beer now and then. Think what you wish, say what you wish, but don't ask your neighbor to do exactly as you do!

Joe Marsh

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Esophageal Surgery, One Week, starting October 16.
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Thoracic Surgery, One Week, starting October 9.
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THE JOURNAL

OF THE

Missouri State Medical Association

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Volume 47 JULY, 1950 Number 7

Scientific Articles

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ARCH J. BEATTY, M.D.
KANSAS CITY
CHARLES A. BRASHER, M.D.
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AND
POUL OTTOSEN, M.D.
MOUNT VERNON

THE PURPOSE of this paper is to analyze the results of 607 thoracic surgical cases using epidural anesthesia at the Missouri State Sanatorium at Mount Vernon, from September 30, 1945, until November 6, 1948. The technic of epidural anesthesia, with its advantages and disadvantages, will be reviewed briefly. The types of cases will be outlined. The cases showing postoperative spreads and reactivations will be presented.

The types of cases with the number of times each procedure was performed are listed:

Thoracoplasty	394
Pneumonectomy	62
Lobectomy	57
Plumbage with acrylate pack	46
Thoracotomy	12
Revision	10
Decortication	9
Open pneumonolyses	6
Schede operation	2
Closure of broncho-pleural cutaneous fistula	2
Rib Resection	2
Monaldi operation	1
Pericardial Cystectomy	1
Scapulectomy	1
Lobectomy and Thoracoplasty combined	1
Total	607

These 607 operations were performed upon 368 patients, with 183 patients receiving multiple operations. The greatest number of procedures done on any one patient was five. There were 200 females and 168 males in this series. Three hundred and fifty-one patients were white and seventeen patients were Negroes. The average age was 34.8 years, the youngest patient being 13 years and the oldest 68 years.

The higher epidural, as distinguished from the caudal, which is a low form of epidural anesthesia, was first used by Fidel Pages of Spain in 1920. Other physicians who have reported its use are Dogliotti of Italy, Gutierrez of Argentina, Vasconcelos of Brazil and Dawkins of England. This type of anesthesia only occasionally has been used and reported in the United States.

The epidural space is known also as the extradural space because it lies outside the dura mater of the spinal cord. This epidural space lies between the dura mater and the membranous lining of the vertebral canal. It extends from the foramen magnum above, where it is closed by fusion of the lining of the vertebral canal and the dura mater, and below to the sacrococcygeal juncture. Laterally, the space communicates with the paravertebral tissue wherein lie the roots of the spinal nerves and the sympathetic ganglia. The epidural space contains venous and arterial plexuses, lymphatic vessels and loose adipose tissue. It has a negative pressure of from minus 1 to minus 18 mm. of mercury. This negative pressure greatly facilitates the administration of the anesthetic.

All patients should be given the usual barbiturate sedation the night before surgical procedure and several hours before the operation. Atrophine or morphine are not used prior to operation. However, it has been found that morphine sulphate, grs. 1-8, intravenously is helpful during operation in some cases in which the operation lasted more than two hours. It is an excellent supplementary analgesia and in small doses does not depress the respiratory center to any appreciable extent.

All patients were skin tested the day before operation with novocain and pontocaine to determine sensitivity. A positive pontocaine reaction would contraindicate its use. A positive novocain reaction would contraindicate epidural anesthesia.

The novocain-pontocaine mixture is dissolved in 28 cc. of normal saline solution. From 500 to 600 mgs. of novocain and from 20 to 40 mgs. of pontocaine are used, depending upon the length of the operation anticipated. To this mixture is added 0.5 cc. of 1 to 1,000 adrenalin. The purpose of the adrenalin is to delay the absorption of the analgesia so that a longer anesthetic can be maintained. It has been found that this novocain-pontocaine dosage gives satisfactory anesthesia for from two and one-half to three hours or longer. In some cases the anesthesia has lasted from ten to twelve hours.

The patient is placed in the sitting position on the side of the operating table with the upper back kyphosed and the neck flexed. An assistant supports the patient's head. This position greatly facilitates finding the spinous processes, especially in the more obese patients. The skin is cleaned with an antiseptic of choice, and the site of puncture is selected between the spinous processes of the seventh cervical vertebra to the third thoracic vertebra. The higher interspaces are preferred for first stage thoracoplasties and extrapleural apicolysis. The lower interspaces are preferred for pneumonectomies, lobectomies and second and third stage thoracoplasties.

A small skin wheal with 1 per cent novocain is made in the exact midline in the interspace selected. A 25 guage needle is used for this step and also to inject the subcutaneous tissue. The opening in the skin made by the 25 gauge needle is enlarged with a regular 18 guage needle or with a knife. A short beveled 18 guage spinal needle is then inserted with the stylet in situ. The various structures penetrated are recognized by their differences in resistance. There is moderate resistance at the supraspinous ligament, slight at the interspinous ligament, and definite resistance at the tough ligamentum flavum. The sense of touch as to the areas reached plays an important part in this procedure. When the needle has been advanced to the tough ligamentum flavum, the stylet is removed and several drops of normal saline are placed in the hub of the needle. The point of the needle is advanced carefully and slowly through the ligamentum flavum so that the dura mater is not penetrated. This step is accompanied by a definite drop which sometimes is almost a snap, and indicates that the needle point is in the epidural space. The saline solution in the hub of the needle will be sucked in, due to the negative pressure within this space. Several centimeters of normal saline solution or air are injected to clear the needle of any tissue and to push the dura mater away from the needle point so that there is no danger of perforating the dura and getting into the subarachnoid space. If the saline or air goes in easily, an attempt to aspirate blood or spinal fluid is made. If the test is positive, the needle is immediately withdrawn and a higher or lower interspace is selected.

If the test is negative, another drop of saline solution is placed within the hub of the needle and the "drop sign" is usually then observed, due to the negative pressure within the epidural space.

These tests indicate proper localization within the epidural space, so 10 cc. of the anesthetic solution is given. The patient usually will complain of quite severe pain in the neck, back, arms and shoulders after the first 5 cc. is given. This pain is due to pressure on the nerve roots and it is a valuable sign that the anesthetic is being given in the proper place. Ephedrine sulfate grs. 3-8 to 3-4 is given subcutaneously after the first 10 cc. has been injected to maintain a stable blood pressure throughout the operation. The remaining 20 cc. is given after a slight pause after each 10 cc. to allow for proper dissipation of the solution. In all, 30 cc. of the anesthetic solution is given. The patient is then placed with his operative side down for ten minutes in order to take further advantage of the gravitation of the fluid. It is important that the anesthetic solution be given slowly so as not to tear any tissue in the epidural space, particularly blood vessels.

AN ANALYSIS OF THE ADVANTAGES OF EPIDURAL ANESTHESIA

1. One of the chief aims in thoracic surgery of tuberculosis patients has been to lower the incidence of postoperative spreads and reactivations. Overholt has tried to lower this occurrence by the

Table 1. *Cases Showing Spread*

1. #17,983 29 yrs. F. W.	Pneumonectomy 1/28/48	Spread to contralateral lung within two months. (3/13/48)
2. #17,887 39 yrs. F. W.	Lobectomy 3/15/48	Spread to contralateral side within one week. (3/20/48)
3. #19,120 36 yrs. M. W.	Pneumonectomy 12/13/48	Spread to contralateral side within two months. (2/1/49)
4. #18,668 29 yrs. F. W.	Lobectomy 8/31/48 Thoracoplasty 11/6/48	Spread to contralateral side within two weeks. (9/8/48)
5. #17,516 53 yrs. F. W.	1st. stage thoracoplasty 7/17/46	Spread to contralateral (right) side within two weeks after first stage thoracoplasty.
6. #17,803 53 yrs. M. W.	1st stage thoracoplasty 7/17/46	Spread to contralateral side (right) within two weeks after second stage thoracoplasty.
7. #16,898 17 yrs. F. W.	1st. stage Thoracoplasty 10/9/46 2d. stage thoracoplasty and scapulectomy 11/20/46	Spread to contralateral (right) base within two weeks after second stage thoracoplasty.
8. #17,097 50 yrs. F. W.	1st. stage thoracoplasty and scapulectomy 11/20/46	Spread to ipsilateral (left) side within one week.
9. #16,489 15 yrs. F. W.	1st. stage thoracoplasty	Spread to right midlung field within two weeks, contralateral lung.
10. #17,730 41 yrs. M. W.	1st. stage thoracoplasty 1/28/47	Spread to contralateral (left) side within two months.

face down position and paravertebral block. Various types of intrabronchial balloons have been devised to prevent the egress of secretions from the ipsilateral to the contralateral lung. Streptomycin and other antibiotics have been of definite help.

One of the chief advantages of epidural anesthesia in thoracic surgery is that the bronchopulmonary secretions are easily and continuously evacuated because the cough reflex is not abolished. The patient is able to expectorate at all times. This anesthetic is predominantly sensory so there is no impairment of the intercostal muscles, the diaphragm or the accessory muscles of respiration.

There were ten cases showing postoperative spread and three cases showing reactivation in the 607 cases analyzed. Two months postoperatively was accepted as the length of time necessary to show spread or reactivation. Thus, the incidence of spreads was 1.65 per cent and the incidence of reactivations was 0.49 per cent.

It was felt that this low incidence of spreads and reactivations was due mainly to the use of epidural anesthesia.

The cases showing spread and reactivation were as follows:

Table 2. *Cases Showing Reactivation*

1. #17,114 38 yrs. M. W.	1st. stage thoracoplasty 7/24/46 2d. stage thoracoplasty 8/14/47	Reactivation contralateral (left) side, midlung field, within two weeks after second stage thoracoplasty.
2. #18,076 31 yrs. F. W.	1st. stage thoracoplasty 9/10/47	Reactivation of contralateral (left) side within one month.
3. #18,337 60 yrs. M. F.	1st. stage thoracoplasty 11/5/47	Reactivation to ipsilateral (right) side within two weeks.

2. The second advantage of epidural analgesia is that there seems to be less cardiorespiratory embarrassment than is usually noted under general anesthesia. There is maximum oxygenation with a minimal deviation from normal physiology.

Oxygen saturation determinations of the blood and alveolar air were not taken during this series of cases but it is hoped that their values may be reported at some future date.

3. The capillary oozing is definitely less than under general anesthesia. Blood loss at operation was replaced immediately by an intravenous transfusion which was started preoperatively.

4. There is a selective action of the anesthetic solution upon the nervous system, depending upon the size of the nerves and the thickness of their medullary sheaths. The paralysis of the thoracolumbar sympathetic nervous system is complete. This condition constitutes the same advantage as is found in spinal analgesia, so that there is little disturbance of the electrolyte balance and the body stays dry and warm during the operation. Since the anesthesia is predominantly sensory, there is no impairment of the intercostal muscles, diaphragm or the accessory muscles of respiration. Dawkins has explained the sensory selectivity of the anesthetic as due to the relative size of the motor nerves (2 to 20 micra) as contrasted to the smaller sizes of the sensory and sympathetic fibers (½ to 2 micra).

5. The fifth advantage of epidural anesthesia is that it allows the electric cautery to be used with safety.

THE DISADVANTAGES OF EPIDURAL ANESTHESIA

There were no anesthetic deaths in the 607 operative cases being reported. We have found no serious disadvantage to using epidural anesthesia for any type of thoracic operation. However, these factors should be considered by one contemplating the future use of epidural anesthesia.

1. Unfamiliarity with the technic of administering epidural anesthesia must be considered. The technic is more difficult than giving spinal anesthesia, but it can be acquired by observing someone familiar with the technic and by experience with the procedure. The danger of injecting the anesthetic solution into the subarachnoid space instead of the epidural space is ever present unless all details given under the technic are adhered to rigidly. This cannot be too strongly emphasized. The anesthetic tray should contain a syringe of at least 15 cc. coramine in case the respiratory center is depressed. Adrenalin and other precautionary agents should be prepared and ready for instant use in case of mishap.

2. The psychic factor of being operated upon while awake is reversible in that a large percentage of patients are fearful of going to sleep. This factor has been controlled by the usual bed time and preoperative barbiturate administration.

SUMMARY AND CONCLUSIONS

1. The results of 607 thoracic surgical operations using epidural anesthesia are presented.

2. There were no anesthetic deaths.

3. There were three cases of reactivation (0.49 per cent).

4. There were ten cases of postoperative spreads (1.65 per cent).

5. A brief account of the technic of administering epidural anesthesia is given.

6. When there is any doubt about the surgeon being in the epidural space, the anesthetic agent should not be injected and another type of anesthetic should be given.

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ANTABUSE IN THE TREATMENT OF ALCOHOLISM

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Experience during a period of thirty-five years has given the conclusion that there is no one treatment for alcoholism, probably because there is no one cause.

In every case there is one necessary requirement for the successful treatment, after the patient has been "dried out" for a period, and that requirement is time; time for the patient to rehabilitate himself under "dry conditions." When Antabuse came to attention it was felt that there was one more remedy to insure prolonged sobriety and make it possible for the patient to rehabilitate himself completely.

When alcohol is taken by an Antabuse-treated patient an unpleasant reaction occurs. Thus, by giving Antabuse, the patient, knowing that the consumption of alcohol will have unpleasant sequelae, may be kept in a "dry condition."

Patients were selected for this study by a thorough screening process. All the patients voluntarily requested the drug. A routine electroencephalogram, electrocardiogram, basal metabolic rate and chest x-ray were done on each patient. Liver function was studied by means of glucose tolerance test, bromsulphthalein and thymol turbidity. The kidney function was studied by a complete urinalysis, including specific gravity, nonprotein nitrogen and phenolsulphthalein. Complete blood count was taken before and at weekly intervals during the treatment, with special attention to the white blood count. A CO_2 combining power test was done so that the degree of acidosis which resulted during one of the "trial drinks" might be tested. It was felt that these were a minimum of laboratory tests needed to study the effects of the drug.

Other investigators have felt that definite contraindications were diabetes mellitus, myocardial failure, coronary artery disease, pregnancy, goiter, hyperthyroidism, epilepsy, cirrhosis of the liver, nephritis and other addictions; also that any patient using paraldehyde should not receive the drug. Hence in the face of any of these conditions the drug was not administered.

After deciding that the patient was a good can-

Table 1.

Nausea—1 Vomiting—2 Flush—3 Odor—4
Conjunctival Injection—5

Case	Minutes	0	3	6	9	12	15	18	21	24	36	42	51	54	57	60
1.	8-11-49						3		5						No odor No N&V	
	8-11-49		3 5												No odor No N&V	
	8-14-49			3 5			4								No N&V	
	8-14-49	3 4	1												No V	
	9-11-49		3	5 4											No N&V	
	11-20-49			3	5	4										3 No N&V
2.	8-19-49			3 5									1			2 No odor
3.	9-11-49		3	5			1									2
	9-15-49			3	4		5								No N&V	
	11- 6-49			3	4		5				1					
4.	10-11-49		3 5												No odor No N&V	
	10-15-49		5 3		4										No N&V	
	11-13-49			3 5		4									No N&V	
5.	10- 2-49		3 5		4				1						Vomiting 2 hrs. later	
	10-15-49		3	5			4								No N&V	
	11-13-49			3	4						1	2				
6.	10-29-49			3	5 4					2						
	11-20-49						3	5 4							No N&V	

Table 2.

Case	Date	Electrocardiogram	Vol. Per Cent CO_2	Acetaldehyde 15 min.	Acetaldehyde 30 min.
1	8-11-49	Sinus tachycardia	45		
	8-19-49	Sinus tachycardia; runs of flutter			
	9-11-49	Sinus tachycardia			
	11-20-49	Sinus tachycardia; marked ST depression; runs of flutter	46.4		.0425 mg.
2	8-19-49	Sinus tachycardia; some depression of ST segments			
3	9-11-49	Sinus tachycardia (arrhythmia) Elevated ST_4			
	9-15-49	Sinus tachycardia			
	11- 6-49	Sinus tachycardia	40	.048 mg.	.0050 mg.
	11-20-49	Sinus arrhythmia		.02 mg.	.125 mg.
4	10-11-49	Normal		.0075 mg.	.057 mg.
	10-15-49	Low T_1; diphasic T_2; Inverted T_3; sinus tachycardia; (Myocardial damage)			
	11-13-49	ST_4 elevated; runs of flutter	44		.11 mg.
5	10- 2-49	Sinus tachycardia			
	10-15-49	Runs of flutter	48	.085 mg.	.075 mg.
	11-13-49	Sinus tachycardia	43		.045 mg.
6	10-29-49		39		.086 mg.
	11- 8-49	Normal	39	.135 mg.	.025 mg.
	11-20-49	Sinus tachycardia	43		.045 mg.

Note: The carbon dioxide combining power reported in volumes per cent; Normal CO_2 circa 55 Vol. %. High acetaldehyde 0.200 mg. % in 15 min. Average acetaldehyde 0.0751 mg. % in 15 minutes, 0.0615 mg. % in 30 minutes.

Antabuse brand of Antabus (tetraethylthiuramdisulphide) was supplied to us by Ayerst, McKenna & Harrison, Limited.

Medical Director, Ralph Sanitarium, 529 Highland Avenue, Kansas City.

Resident, Medical Service, Kansas City General Hospital No. 1, Kansas City.

didate, the drug was administered orally in the following doses: 1st day, 2 grams; 2nd day, 1.5 grams; 3rd day, 1 gram; 4th day, 0.75 grams, and 5th day, 0.75 grams.

On the fifth day the patient was given what we termed a "trial drink," a measured amount of whiskey, and determined the reaction that followed. According to his reaction he was then placed on a daily maintenance dose averaging from 0.5 to 1.5 grams. The dosage schedule did not correlate with the body surface or weight of the patient.

Several minor untoward effects were noted during the daily maintenance administration of Antabuse. The most common of these was drowsiness, which was alleviated by allowing the patient to take the drug at bedtime. One patient noticed nausea while on the drug, but it was found that he was using a cough syrup having an alcoholic base. Still another patient noticed some nausea after eating sauerkraut and cabbage slaw. This reaction could not be explained. One of the patients thought his libido had decreased, but it seemed that this was a functional element which might have been due to the lay press emphasis on this particular item.

After the patient had been on the adjusted maintenance dose for three days, he was given a second "trial drink" and his reaction again observed. The reason the patient was given two "trial drinks" was to standardize him so that if he did take a drink after leaving the hospital, and playing the odds that his initial drink would be only one ounce

Table 3. Clinical Reactions.

FLUSH	
Earliest onset	3 minutes
Average onset	6 minutes
Per cent	100
Present in all cases	
ODOR	
Earliest onset	6 minutes
Average onset	9 minutes
Per cent	80
CONJUNCTIVAL INJECTION	
Earliest onset	3 minutes
Average onset	8 minutes
Per cent	100
Present in all cases	
NAUSEA	
Earliest onset	15 minutes
Average onset	30 minutes
Per cent	33
VOMITING	
Earliest onset	24 minutes
Average onset	60 minutes
Per cent	30

of alcohol, it was desired that he have only the first part of the reaction, which will be described.

The measured amount of alcohol given during the "trial drinks" was 30 cc. of whiskey, repeated at twenty to thirty minute intervals. It was found that by repeating the 30 cc. at intervals, it was possible to control the reaction during the "trial drinks."

When alcohol is given to a patient who has been taking Antabuse, a definite series of reactions occurs. A flush beginning over the face and neck is one of the first symptoms to occur. The earliest onset of this was three minutes after giving alcohol, with an average onset of six minutes. This occurred in 100 per cent of the patients. The next symptom was injection of the conjunctivae, appear-

Table 4. Study of Pulse Rate.

Case		Minutes	0	15	30	45	60	75	Difference	Minimum Time (min.)
1	8-11-49	Antabuse .25 Whiskey 45	92	115	125	115		100	33	30
	8-11-49	Antabuse .25 Whiskey 45	125	128	115	100			28	15
	8-14-49	Antabuse .75 Whiskey 60	82	125	110	105	90		43	15
	8-14-49	Antabuse .75 Whiskey 60	88	110	100	90	85		22	15
	9-11-49	Antabuse .75 Whiskey 45	86	108	112	100	84		26	30
2	8-19-49	Antabuse .75 Whiskey 45	88	135	125	120	105		47	15
3	9-11-49	Antabuse .75 Whiskey 50	80	108	150	92	84		70	30
	9-15-49	Antabuse .75 Whiskey 30	80	120	130	100	85		50	30
	11- 6-49	Antabuse .75 Whiskey 40	92	120	98	90	90		28	15
4	10-11-49	Antabuse .75 Whiskey 40	88	110	120	100	84		32	30
	10-15-49	Antabuse .75 Whiskey 60	86	96	110	92	88		24	30
	11-13-49	Antabuse .75 Whiskey 30	76	110	104	90	82		34	15
5	10- 2-49	Antabuse .75 Whiskey 60	94	120	128	96	96		34	30
	10-15-49	Antabuse .50 Whiskey 40	82	110	120	96	85		38	30
	11-13-49	Antabuse .50 Whiskey 30	88	108	115	100	90		27	30
6	10-29-49	Antabuse .75 Whiskey 30	82	100	106	90	84		24	30
	11-20-49	Antabuse .75 Whiskey 30	76	100	120	90	80		44	30
	Average								35	25

(Antabuse in gm. Whiskey in cc.)

ing earliest in three minutes and on an average in eight minutes and in all cases.

An abnormal odor of acetaldehyde became apparent on the patient's breath within an average of nine minutes, the earliest in six minutes. Only 80 per cent of the patients had this reaction.

The earliest nausea was noted in fifteen minutes, while the average time was thirty minutes after giving alcohol; nausea occurred in only 33 per cent of the patients.

Thirty per cent of the patients vomited in an average time of sixty minutes after receiving alcohol. It is our belief that we could have produced nausea and vomiting in every patient if we had not graduated the alcohol doses at twenty to thirty minute intervals and stopped the reaction as soon

Table 5. Blood Pressure.

Case		Minutes 0	15	30	45	60	75	90	120	135	Var.*
1	8-11-49	130/90	120/70								10/20
	8-11-49	120/70	110/70								10/ 0
	8-14-49	140/90	120/70								20/20
	8-14-49	110/70									0/ 0
	9-11-49	145/95		140/90							5/ 5
	11-20-49	130/95	110/65	95/60		110/70					45/35
2	8-19-49	120/85		110/85							10/ 0
3	9-11-49	130/80	115/10	75/08	80/ 0	100/80					55/80
	9-15-49	120/70	120/80								0/ 0
	11- 6-49	120/60	100/35			84/54					36/25
4	10-11-49	110/80	110/80	100/70	120/80						10/10
	10-15-49	120/85	115/50	70/30	60/ 0						60/85
	11-13-49	120/80		120/80		110/70					10/10
5	10- 2-49	120/75	125/85	105/50	95/ 0	70/46	80/60	86/60	90/60	108/80	39/85
	10-15-49	110/70	100/80	70/ 0		80/50		110/70			40/80
	11-13-49	110/75	110/60	120/60							0/15
6	10-29-49	130/85	135/65	110/55		100/50					35/35
	11-20-49	120/80			120/45	120/60					0/35

Average drop: 20/30. Greatest drop: 60/85.

* Variation

as we had the desired effect, but before nausea and vomiting occurred.

Every patient developed a tachycardia during the reaction which averaged 35 points above the resting pulse rate and was at its maximum twenty-five minutes after the administration of alcohol. The blood acetaldehyde levels were measured in accordance with the peak of the reaction. The highest blood level was 0.2 mg. per cent taken fifteen minutes after the alcohol was given. The average acetaldehyde blood levels were 0.095 mg. per cent fifteen minutes after alcohol and 0.062 mg. per cent thirty minutes after alcohol, respectively. The CO_2 combining power was lowered an average of 12 volumes per cent thirty minutes after alcohol was given.

The blood pressure began to fall from fifteen to thirty minutes after alcohol was given. The greatest drop in blood pressure was 60 mm. systolic and 85 mm. diastolic. The average fall in blood pressure was 20 mm. systolic and 30 mm. diastolic. In no case did the blood pressure fall below 50 mm. systolic pressure. The blood pressure then began to rise again to normal levels, between forty-five minutes and one hour after the alcohol had been given.

An electrocardiogram was taken thirty minutes after the alcohol was given. Only two patients showed a normal electrocardiogram. Eleven patients showed a sinus tachycardia with rates as high as 150. There was some ST segment depression in these tracings, which was consistent with the tachycardia present. Four showed runs of auricular flutter in one or more of the five leads that were taken. One showed a low T_1, diphasic T_2, and inverted T_3 which had not been present before. This was interpreted as an ischemia and disappeared within two hours after the alcohol was given.

All patients were under supervision of a responsible member of their family who helped remind the patient to take the Antabuse daily. The "trial drinks" which the patient is given insured better contact for the patient with his doctor and gives something concrete to a prolonged follow up.

CONCLUSIONS

The drug is not a dangerous drug, under supervision.

We believe that Antabuse will offer help for two definite groups of patients, providing none of the contraindications are present. These are (1) The patient who believes that "once an alcoholic, always an alcoholic," and that no therapeutic remedy has been found to help him. Antabuse will help keep him dry, if he takes his daily maintenance dose. (2) The patient who cannot say "no" when he is in a group, who has a tendency to believe the use of liquor is necessary socially, or whose occupation requires him to be thrown in contact with liquor during his daily tasks. Antabuse is an aid to his rationalization when the emergency arises.

529 Highland Avenue.

REPORTS DEVELOPMENT OF LABORATORY TESTS FOR DIAGNOSIS OF VIRUS DISEASES

Development of practical laboratory tests for diagnosing virus and rickettsial diseases is reported by a Chicago doctor in the May 20 *Journal of the American Medical Association.*

The tests were used on 349 patients, Dr. Albert Milzer of the Medical Research Institute, Michael Reese Hospital, says.

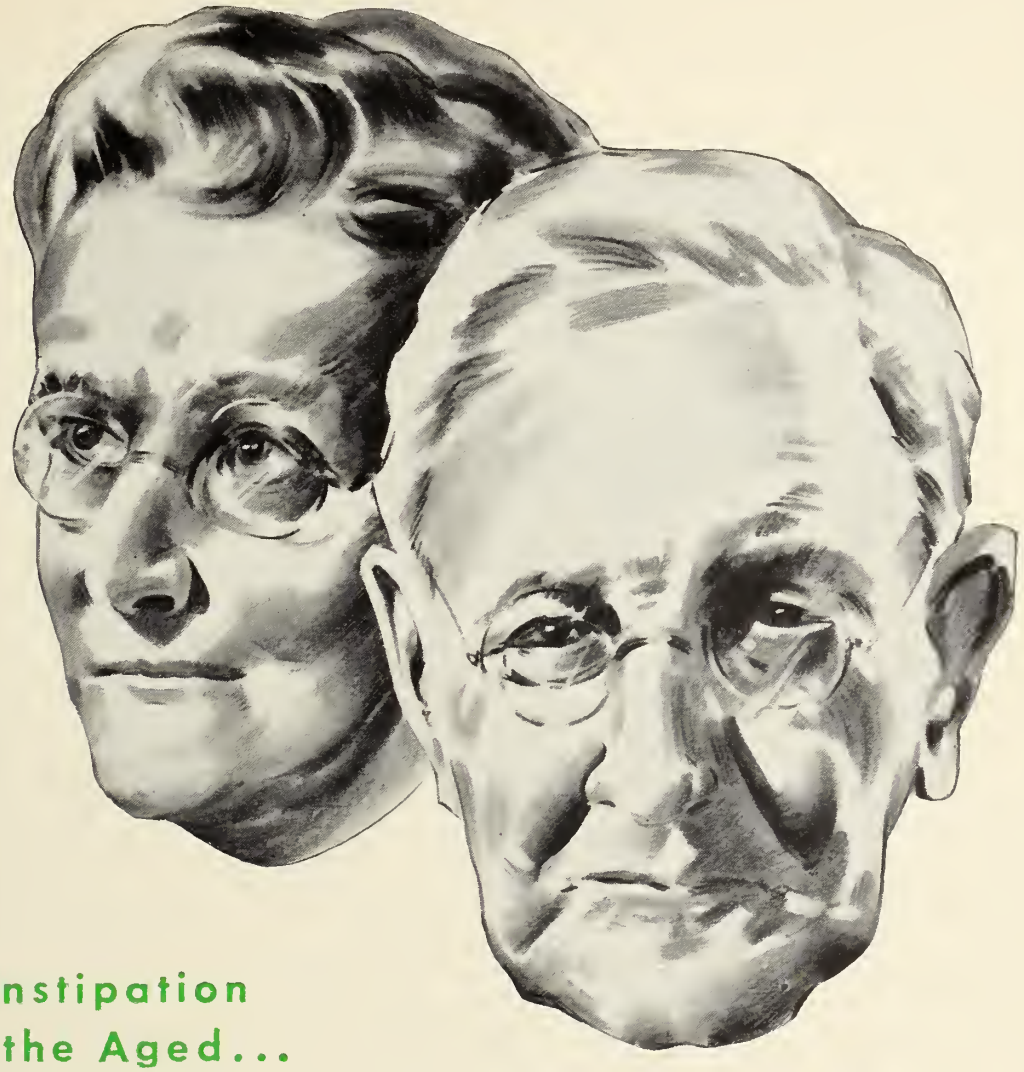
"In the past, laboratory techniques for diagnosis of the virus and rickettsial infections have been too complicated for the routine hospital laboratory," Dr. Milzer points out.

"These procedures were largely limited to research laboratories. Recently tests for many of these diseases have been developed to the point that hospital laboratories can perform many of these tests and be of great diagnostic aid.

"The fact that virus and rickettsial diseases such as psittacosis, influenza and Q fever may closely simulate atypical pneumonia serves to emphasize the diagnostic value of conducting serologic tests for patients with infections of the respiratory group.

"Furthermore, the full benefits of chemotherapy are more apt to be achieved if the exact basis of the disease is known."

The procedures reported do not include a satisfactory routine laboratory test for poliomyelitis.



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Postgraduate Review

PROGRESS IN ORTHOPEDIC SURGERY

ROBERT M. O'BRIEN, M.D.
ST. LOUIS

SURVEYING THE progress of orthopedic surgery during the last decade, one finds a noteworthy tendency has been the development of subspecialties such as infantile paralysis and cerebral palsy, practiced by specialists in a single disease. The technics of rehabilitation of the injured and otherwise disabled individual are another example of highly specialized medical practice. Sufficient time has not yet elapsed to determine whether or not this trend always constitutes progress.

From my observations, usually the patient is benefited. Sometimes, he is not. In general, the medical superspecialist involved serves a useful purpose when he has had a firm foundation and broad experience in one of the established medical specialities such as orthopedics, neurology or pediatrics, before he undertakes the limitation of his efforts to a single disease or small group of diseases.

It is interesting to note that a phase of medical history is being repeated. The orthopedic surgeon came into being largely because the general surgeon was too busy with operative work to devote the time necessary to perform properly his functions to the patient in the details of nonsurgical care. In the same way, perhaps for the same reason, much of the orthopedist's work is now done by the chiropodist, the practitioners of manipulative treatment, the physiotherapist, licensed and unlicensed, the specialist in infantile paralysis, the specialist in cerebral palsy, and many others, some qualified, some not.

Reviewing the orthopedic literature of the last ten years, many refinements are found in diagnostic and surgical technics, notably in lesions of the intervertebral disc. However, the event of epochal importance, in orthopedic surgery as in most other branches of medical science, was the discovery and clinical application of chemotherapy and antibiotic treatment.

OSTEOMYELITIS

Penicillin therapy of acute hematogenous osteomyelitis is undoubtedly the greatest recent advance in orthopedic surgery. Sulfonamide therapy of this disease challenged the role of operative treatment in the acute case and lowered the mortality. It did not, however, always satisfactorily control the local bone lesion. Penicillin has done this in a most effectual manner.

Once considered a surgical emergency of grave magnitude, acute hematogenous osteomyelitis now usually can be aborted by early diagnosis and prompt, adequate penillin therapy.[1, 2, 3, 4, 5]

From the Department of Orthopedic Surgery, St. Louis University School of Medicine.

INFANTILE PARALYSIS

The meteoric flight of the Sister Kenny star caused a reexamination of existing methods of treatment of anterior poliomyelitis and awakened new interest in this condition. During the height of the Kenny controversy in 1944, a committee of orthopedic surgeons traveled about the country, evaluating this method of treatment, and reported their findings.[6] In brief, their report stated that there was little that was new about the Kenny treatment and much of what was new was not true.

The experience of the last six years has confirmed the correctness of the committee's conclusions and has discredited the extravagant claims of Sister Kenny and her followers. Respirators and braces still are being used when indicated. To Sister Kenny's credit, it must be said that present treatment trends are more dynamic in concept than they were before her visit.

PAINFUL SHOULDER

Little has been added to the knowledge of the shoulder bursitis syndrome since the publication of Codman's splendid monograph on the shoulder in 1939.[7] The "frozen shoulder," or scapulo-humeral periarthritis as it is sometimes called, was believed by Codman to be due to adhesions between the floor and the roof of the subacromial bursa. Neviaser[8] demonstrated at operation and in cadavers that the adhesions were mainly between the capsule and the articular surface of the humeral head. He called the condition "adhesive capsulitis."

An effort has been made to refine diagnosis of the painful shoulder and there is a growing tendency to avoid the term "bursitis." On an etiologic basis, some differentiation can be made. Certain cases can be demonstrated to have complete rupture of the supraspinatus tendon, others tendinitis of the long head of the biceps, and some calcium deposits in the tendons of the short rotator cuff.

Operative treatment is advised when rupture of the supraspinatus tendon can be demonstrated or is strongly suspected.[7, 9] Most other lesions usually will respond to procaine infiltration and irrigation of the bursa. Ethyl chloride spray will help some cases. X-ray therapy[10] is effective in other patients, being of most value in the acute case. Surgery is needed sometimes in chronic cases and many consider it the treatment of choice in the acute case, particularly when the lesion is complicated by calcium deposits.

DISCREPANCIES IN LEG LENGTH

Phemister in 1933 established the surgical procedure of epiphyseal arrest as a method of leg equalization. This relatively minor operation has been extremely useful, especially in infantile paralysis. Reasonably accurate methods of predicting lower extremity growth have been developed.

However, these calculations are fallible, and once an epiphyseal line is surgically closed it cannot be reopened.

Haas in 1945[11] reported a method of temporarily arresting epiphyseal growth by encircling the epiphyseal plate with a wire suture. In 1948, the same author[12] published a refinement of this technic, using metal staples. It is believed that by this method, growth of an epiphysis can be stopped for as long as three years, and then restarted by removal of the staples. Bowlegs and knock knees theoretically can be corrected by further growth following unilateral epiphyseal stapling.

Operative leg lengthening has been shown to have a limited application, being attended by many possible serious complications such as nerve paralysis, delayed union or nonunion, and even ischemic gangrene.

Leg shortening operations are constantly proposed in orthopedic literature. However, the patient often is unwilling to submit to a major operation on his normal leg. In other instances, he is already so short in stature that he does not wish further diminution of his height.

MORTON'S TOE

Independently, Betts of Australia[13] and McElvenny of Chicago[14] established the cause of Morton's metatarsalgia as being a neurofibromatous degenerative or neoblastic change in the fourth plantar nerve, causing the development of a tumor mass in the substance of the nerve, usually between the third and fourth metatarsal heads. Prompt and apparently permanent relief of pain follows resection of the tumor.

OSTEOPOROSIS

Fuller Albright,[15] in the course of metabolic research at the Massachusetts General Hospital, has added considerably to the knowledge of calcium metabolism and osteoporosis. Among other contributions he called attention to a syndrome of bone atrophy which he named postmenopausal osteoporosis. Affecting mainly the spine, and closely resembling senile osteoporosis, this condition manifests itself in women about seven years after the menopause. Vertebrae soften and collapse, causing back pain that is sometimes severe, sometimes mild to absent. The skin and hair of the person affected is thin and atrophic.

Symptomatic relief usually follows calcium medication, vitamin D administration and back support. Estrogenic therapy is helpful but must be administered with proper safeguards regarding possible carcinogenic effects.

BONE BANKS

The feasibility of the preservation and clinical use of homogenous bone has been well established during the last four years.[16, 17] Preservation of the bone is accomplished by refrigeration technics in most instances. However, Reynolds and Oliver[18] have shown that chemical preservation in dilute merthiolate solution without refrigeration is also possible. Both procedures, while still *sub judice,* open up new fields in osteosynthesis, particularly in young children and in the poor surgical risk. In infants and young children, sufficient autogenous bone is usually not available. In the patient who is a poor surgical risk, the bone bank makes unnecessary a second major operation for the removal of a bone graft.

ANKLE SPRAIN

Recent studies, by Pitkin[19] and others, have shown that some ankle sprains may be complete tears of the calcaneofibular ligament of the ankle allowing partial medial dislocation of the tibiotalar joint. Accurate diagnosis is generally possible only by radiographs made with the surgeon forcing the foot into full inversion. To permit this examination without undue pain, the torn ligament is injected with procaine prior to the taking of roentgenograms.

The treatment of the ordinary ankle sprain, which is only a partial tear of this ligament, is largely symptomatic. The therapy of a complete tear of the calcaneofibular ligament is six weeks' immobilization in a plaster walking cast.

The poor results of inadequately treated complete tears of the calcaneofibular ligament in the past undoubtedly were responsible for the maxim that sprain of an ankle is often worse than a fracture.

SPASTIC PARALYSIS

Winthrop Phelps,[20] an accomplished orthopedic surgeon, is an outstanding example of subspecialization mentioned earlier in this paper. After attaining the rank of Professor of Orthopedic Surgery at Yale University, he went to Baltimore and began specialization in a group of disorders of muscular function known collectively as cerebral palsy. He has made tremendous contributions in this field.

Cerebral palsy is defined by Phelps as a lack of proper control of muscles, resulting from faulty development, injury or disease of the brain. He subdivides the condition into:

Spastic Paralysis: Poor muscle control characterized by exaggerated stretch reflexes.

Athetosis: Characterized by involuntary motion.

Rigidity: A stiffness of skeletal musculature occuring when motion is considered or attempted, or often when any physical, mental or emotional reaction is registered.

Ataxia: Poor balance, poor positional and directional sense and incoordination.

Tremor: Involuntary movements similar to Parkinson's syndrome.

Mixed Types: Combinations of any of the above groups.

Much has been accomplished in the diagnosis and treatment of this condition during the last ten years. The role of surgery in all but the true spastics is limited, and even in this group surgical indications are being more strictly observed than formerly.

A national brain registry has been established recently in Chicago by the American Academy for Cerebral Palsy, and it is possible that this group, studying brains of patients with adequate clinical records and treatment programs, may point the way to a better knowledge of this group of poorly understood conditions.

HIP SURGERY

In 1939, Smith-Petersen[21] of Boston reported results of a new type of arthroplasty of the hip, using a vitallium cup in place of fascia lata and other perishable interposition membranes previously used. Like most surgical innovations, this procedure was enthusiastically received by the profession. Later, enthusiasm gave way to realism when further experience proved that perfect hip joints, like trees, are made only by God. However, eleven years' trial has shown that satisfactory results can be obtained by a carefully performed operation on a well selected patient.

The last year or so has seen another method of hip reconstruction attempted, utilizing a prosthetic model of the upper third of the femur. The prosthesis varies in design and is still highly experimental. However, it appears certain that a workable appliance will be developed in the near future, and if the principle is physiologically sound the scope of reconstructive hip surgery will be greatly enlarged.

MILITARY SURGERY

The surgeons of World War II made notable contributions to orthopedic surgery in amputation prosthesis, skin graft treatment of chronic osteomyelitis, the handling of compound fractures and joint injuries, and in rehabilitation of paraplegics, as well as in the field hand surgery.[22, 23, 24, 25, 26]

FRACTURES

The great recent contribution in this field has been the intramedullary nail introduced by Küntscher in 1940.[27] The principle has proved effective particularly in certain types of fresh and ununited fractures of the femoral shaft. The nail also has been used with less widespread acceptance in the tibia, humerus and forearm bones.

Neufeld, Thornton, Moore and others have invented right angle blade-plates or attachments which have made possible operative treatment and internal fixation of intertrochanteric fractures of the femur.[28] In many fracture centers, this procedure is now as well standardized as is the internal fixation of femoral neck fractures with the Smith-Petersen nail. The mortality rate of this injury has been lowered and the functional results improved.

SYNOVIAL FLUID

In the Arthritis Clinic of the Massachusetts General Hospital, Bauer and Ropes[29] have studied the chemical and cellular constitution of normal synovial fluid and have made considerable progress in establishing differential diagnostic criteria in various types of joint disease. It seems reasonable to expect that soon microscopic and chemical analysis of the synovial fluid will yield as much diagnostic information as does the routine analysis of the spinal fluid and other body transudates.

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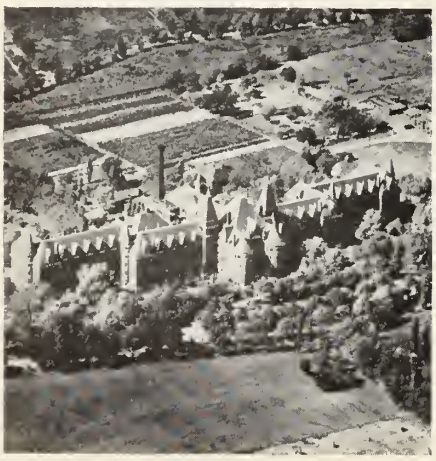
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Clinical Conference

TREATMENT OF CANCER AT THE ELLIS FISCHEL STATE CANCER HOSPITAL

JOHN MODLIN, M.D., *Moderator*
COLUMBIA
RICHARD JOHNSON, M.D.
COLUMBIA
ALLAN GAY, M.D.
COLUMBIA

JOHN MODLIN, M.D.: Approximately 14,000 patients have been seen at The Ellis Fischel State Cancer Hospital during the ten years that it has been in operation, and a vigorous followup system has permitted an accurate appraisal of the results of treatment in more than 95 per cent of this group. It is emphasized that the observation of these patients has been conducted by a full time staff interested solely in cancer. In this discussion, the diagnosis, management and five year results of treatment of the more common types of cancer that have been seen at the Cancer Hospital will be reviewed.

CANCER OF THE SKIN

RICHARD JOHNSON, M.D.: It is a well established fact that cancer of the exposed skin and lip are related to prolonged exposure to sunlight. In material at this hospital this fact is self evident. We deal primarily with a rural population. The cancers are located predominately on the exposed skin and on the lower lip. In addition, the combination of the two lesions in the same patient is far too frequent to be accountable by chance.

Preceding the development of frank cancer, these patients show characteristic alterations of the exposed skin. These consist primarily of atrophy, loss of elasticity and pigmentation. Superimposed on this background are multiple keratotic plaques, the so-called senile keratoses. Frequently there is a history of such a plaque preceding the cancer by many years. The frequency with which this happens is impossible to estimate. Many of the plaques can be removed by repeated applications of an oily substance, leaving a grossly unaltered surface. This does not alter the carcinogenic potentiality of this site. It is far more important to keep in mind that the entire area of altered skin is a potential site of cancer.

The gross forms of skin cancer fall into two major groups: a circumscribed papillary, or fungating form, and an infiltrating, ulcerating variety. Microscopically, the following three basic divisions are recognized: melanocarcinoma, epidermoid and basal cell carcinoma. Melanocarcinoma does not properly belong in the "sunlight" cancers; it occurs equally frequently on unexposed skin and clinically is a highly malignant tumor. Basal cell tumors are at the other extreme; metastases are rare, and local control is the major problem. Epidermoid carcinoma has an intermediate position. The rate of metastasis is about 15 per cent. Previous inadequate treatment is the most important clinical factor influencing this rate. When no previous treatment has been given, only 5 per cent show metastases. This figure becomes 30 per cent when the tumor is a recurrence.

DR. MODLIN: Both surgical and irradiation methods are highly successful in the treatment of epidermoid and basal cell cancer of the skin. At The Ellis Fischel Cancer Hospital, treatment with either method is individualized according to anatomic location, previous treatment and other factors. Due to a rather large waiting list, it has been found more expeditious to excise most lesions of the skin of the dorsum of the hand, cheek, neck, forehead and other areas where loss of function or alteration of appearance will not be excessive. There seems to be little question, however, that the skillful application of external roentgentherapy to lesions of the eyelid, nasolabial fold and large lesions of the lip is far superior to surgical excision. Electrocoagulation methods in the treatment of cancer of the skin are not employed at The Ellis Fischel Cancer Hospital since such methods do not permit histologic diagnosis and histologic interpretation of the adequacy of surgical excision.

ALLAN GAY, M.D.: In the treatment of most skin cancers, radiotherapy is an alternative method to surgery. It becomes the treatment of choice, however, in lesions of certain locations such as the eyelid, nose, nasolabial fold and small lesions of the ear. Skilled radiotherapy, with careful adaptation of the treatment to the individual lesion, produces esthetic results which are superior to those which can be obtained by surgery. However, to avoid atrophy, fibrosis and telangiectasia in the treatment of such lesions, it is advisable to protract treatment over a period of from two to three weeks. In the treatment of epitheliomas of the eyelid, good results following irradiation therapy can be obtained only with careful shielding of the eye, intelligent choice of physical factors and protraction of treatment over a period of several weeks. It has been our experience that such treatment is far superior to that which can be obtained by surgical excision and plastic reconstruction of the eyelid, and we have not encountered radioresistant epitheliomas in this region.

CANCER OF THE LIP

DR. MODLIN: Cancer of the lip also is encountered frequently at the Cancer Hospital. As in cancer of the skin, prolonged exposure to sunlight over a period of many years is undoubtedly a major factor in the causation of these lesions. Lip cancer accounted for 7 per cent of all types of cancer seen

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at the hospital between 1940 and 1943 and outranked such common types of cancer as cancer of the colon, stomach and prostate. The diagnosis is, as a rule, easily made by inspection and palpation, the usual history being that a blister or scabbed area has existed for from three to six months with failure of healing by conservative measures. Many of these lesions arise on the basis of a preexisting leukoplakia and, although the diagnosis generally can be made at a glance, it is surprising how many lesions masquerade as innocent, incrusted, superficial ulcerations. A good general rule is to regard any ulcer of the lip which fails to heal within a period of from two to three weeks as malignant until proven otherwise by excision or by biopsy.

The treatment of cancer of the lip can be divided logically into the treatment of the primary lesion and lymph metastases.

Dr. Gay: At this institution, the choice of treatment for lip cancers is determined largely by the extent of the lesion. Small lesions which require removal of less than one third of the surface of the lip are treated in the clinic by a simple V excision. This procedure is curative, produces negligible impairment of function and is expeditious.

Larger lesions are treated by roentgentherapy for it produces the best esthetic results. X-ray is preferred to radium because it offers greater flexibility in protraction and in adapting the treatment to the individual lesion. Good results can be obtained only by careful shielding of the gum, allowance for an adequate margin of normal tissue around the lesion and protraction of treatment over a period of from three to four weeks. Advanced lesions which already have produced large defects are treated surgically since they will require subsequent plastic repair. Also, lesions which present metastases to cervical nodes when first seen are treated surgically since delay in treatment of the metastases is avoided thereby.

Dr. Modlin: All too frequently attention is directed exclusively to the treatment of the primary lesion in cancer of the lip, with later disastrous results. Lymph node metastases generally involve the submaxillary group of lymph nodes and less frequently the submental group of nodes. Most authorities are agreed that neck dissection is the preferred method of treatment in most patients with such metastases, notwithstanding the occasional enthusiastic exponent of irradiation methods. Agreement is lacking, however, concerning the optimum time of performance of neck dissections, the discussion centering around the merits of the so-called "prophylactic" neck dissection performed before metastases are clinically evident, and the therapeutic dissection performed after metastases are clinically evident. We have recently reviewed the records of 179 consecutive patients with cancer of the lower lip who were treated at The Ellis Fischel Cancer Hospital prior to 1944 and who are thus capable of a five year period of followup. Despite the fact that several patients failed to return at regular intervals for followup examination, a 100 per cent followup has been obtained. 20 per cent of the entire group of 179 patients developed metastases either on admission or during followup, but of 158 patients who appeared for treatment of the primary lesion without clinical evidence of lymph node metastases, only fifteen or approximately 10 per cent developed proven metastases during a followup period of five years. Eight of this group of fifteen patients, or approximately 50 per cent, were salvaged by means of delayed or therapeutic neck dissections. It is thus submitted that it is illogical to perform routine "prophylactic" neck dissections in all patients with cancer of the lip since this would result in the performance of ninety operations in patients who would never develop metastases in order to benefit ten patients with early lymph node metastases. This seems particularly pertinent since the curability of delayed or therapeutic neck dissection is approximately equal to that of the so-called "prophylactic" procedure in patients with proven metastases. If "prophylactic" neck dissections are not done routinely, however, the neck should be palpated carefully for evidence of metastases at frequent intervals following treatment of the primary lesion. Of the fifteen patients in this series who developed metastases during followup, fourteen occurred within one year of treatment of the primary lesion, hence, the utmost care should be exercised during this time. The prognosis following adequate treatment of cancer of the lip is good, the absolute cure rate for five years in this group of 179 patients was 65 per cent, and when deaths from intercurrent diseases are excluded, it was 85 per cent.

CANCER OF THE BREAST

Dr. Johnson: Carcinoma of the breast is the most frequent type in women in all large series based on mortality figures. Despite the accessibility of the tumor for early diagnosis, the end results are surprisingly poor. An absolute five-year cure rate based on all cases seen rarely exceeds 25 per cent.

The early spread of breast cancer is predominately, if not exclusively, through lymphatic channels. The direction of spread is influenced by location, size and, perhaps, rate of growth. The most frequent initial direction is to the axillary lymph nodes, and this is the rationale for radical mastectomy. When the cutaneous lymphatic plexus overlying the breast is invaded, the direction becomes quite unpredictable and, at this stage, the end results are poor.

The clinical evolution of the disease shows considerable variation. At one extreme are cases in which the time from initial manifestation to death may be only one or two months. As example of the other extreme is a recent case with recurrence in an operative scar thirty-three years following radical mastectomy. There are several series of untreated breast cancers which indicate that the average duration of life from initial manifestation to death is from thirty to forty months. In any dis-

cussion of surgical or radiotherapeutic methods, consideration should be given to the influence of the procedure on the duration of life of those cases in whom the disease is not controlled. The devising of precise criteria of operability is a direct result of a suspected accelerating influence of surgery in advanced stages of the disease.

DR. MODLIN: Unfortunately, few cases of early cancer of the breast are seen at The Ellis Fischel Cancer Hospital, only from 50 to 60 per cent of such patients being considered suitable for radical mastectomy when first seen at the hospital. Although the delay in diagnosis generally can be attributed to the patient, many are still appearing at the Cancer Hospital with the history of having been advised "not to worry" about the mass in the breast by a physician. Many factors such as the age of the patient aid in the diagnosis of tumors of the breast, but it is important to recall that the correct diagnosis can be made by physical examination alone in only about 70 per cent of the cases even by the most expert clinicians. It cannot be too strongly emphasized that any dominant lump in the breast should be excised for histologic diagnosis regardless of age and other findings. It also should be stated that in the event that a breast tumor is removed, facilities must be at hand for expert histologic interpretation, and the surgeon must be prepared to proceed with radical mastectomy in the event that carcinoma is found. In the latter regard, patients are still appearing at the Cancer Hospital with the history of previous local excision by a physician unprepared to proceed with radical mastectomy, thus resulting in a regrettable delay in treatment. As a breast malignancy progresses, later signs include attachment to the skin or underlying pectoral fascia. This extension is evidenced by asymmetry and loss of contour of the involved breast, and such signs should always be looked for carefully in the examination of any breast tumor. Later signs include ulceration and edema of the skin, the latter being a manifestation of involvement of the dermal lymphatics by cancer cells and of ominous prognostic significance. The so-called inflammatory type of cancer of the breast is often confused with acute inflammation of the breast. Paget's disease of the nipple, while relatively uncommon, always should be immediately associated in the mind of the examining physician with an underlying carcinoma of the breast and the findings of typical Paget's cells in the epidermis of an excoriated nipple is conclusive proof of the presence of an underlying cancer of the breast for which radical mastectomy is necessary.

The treatment of cancer of the breast has changed but little since Halsted and Willy-Meyer independently described the procedure of radical mastectomy more than fifty years ago. In the past, the only criteria of operability were that the tumor be limited to the breast and axilla of the same side, and that both the primary tumor and lymph node metastases be movable from the chest wall. Such criteria have left much to be desired as far as a permanent cure of the breast is concerned, and Haagenson and Stout recently have advanced more exact clinical criteria for judging which patients are beyond the hope of cure by means of radical mastectomy. With the exception of cancer of the breast occurring during pregnancy and lactation, these criteria are in general followed at The Ellis Fischel Cancer Hospital. In doubtful cases, however, radical mastectomy is done since, as Adair has emphasized, if one accounts for all cases regardless of whether or not radical mastectomy is done, he is less likely to be so selective in deciding which patients are operable. It should be emphasized that such criteria do not add to the overall salvage of cases of cancer of the breast; they merely provide for a higher rate of cure in those patients who are treated.

The results of treatment of cancer of the breast at the Cancer Hospital leave much to be desired. In the first 297 cases, 67 per cent were considered curable by means of radical mastectomy. At the end of five years, 17 per cent were alive and clinically free of disease, a figure which undoubtedly seems extremely low in comparison with the usually quoted cure rate for this disease. It is to be emphasized that most reports deal only with operable cases, a most misleading method of interpretation of results. Haagenson and Stout have reported a 22 per cent five year absolute cure rate in all patients who were seen at the Presbyterian Hospital, and it is quite likely that the cure rate probably does not exceed from 20 to 30 per cent when all patients are considered.

DR. GAY: Radiotherapy is of definite value as an adjunctive measure in the management of mammary cancer. The benefits to be obtained from preoperative or postoperative irradiation are questionable, and neither procedure is used routinely at our hospital. We do believe that definite palliative benefit occurs in inoperable cases treated by radiotherapy, and it has been shown that from 25 to 30 per cent of these patients will remain well for five years. Worthwhile palliation is achieved also in the treatment of local recurrences following mastectomy, axillary and supraclavicular nodes and osseous metastases. Roentgen castration seems to be of value in premenopausal patients, especially those with osseous metastases.

CANCER OF THE CERVIX

DR. JOHNSON: Carcinoma of the cervix is seen almost as frequently in our institution as carcinoma of the breast. Again, it belongs in the accessible cancers and one might anticipate early diagnosis. Actually, the proportion of advanced cancers which we see is so large as to be discouraging. The cytologic smear technic for early diagnosis has received considerable emphasis recently and is of proven value.

The variability of the clinical evolution of the disease is less marked than in carcinoma of the breast. I believe this is due primarily to the fact

that local spread with involvement of the urinary tract is the principal cause of death. Distant metastases become a problem only when the primary tumor has been controlled.

Dr. Gay: The allocation of every case of carinoma of the cervix to a clinical stage is of paramount importance for choice of treatment, estimation of prognosis and comparison of results. The League of Nations classification is used at the Cancer Hospital and the clinical stage of cervical cancer is the most important factor in prognosis and is a cogent argument for early diagnosis. Using a variety of technics of radiotherapy, various radiation centers throughout the world obtain the following five year survival rates: Stage I, 70 to 80 per cent; Stage II, 50 to 60 per cent; Stage III, 20 to 30 per cent and Stage IV, 0 to 10 per cent. Thus it is obvious that in early stages of the disease, good results are obtained by skilled radiotherapy. Moreover, definite palliative benefits result in the more advanced cases.

At our institution, between 1940 and 1943, these patients were treated by a combination of external roentgentherapy and internal radium therapy. Of the 285 cases, 12 per cent who died of intercurrent disease or who were lost to followup are also included as failures, so the 24.4 per cent five year survival represents the absolute cure rate. Since 1943, transvaginal roentgentherapy has been substituted for radium therapy but sufficient time has not elapsed for evaluation of results.

Two conclusions are warranted: first, various methods and technics of radiotherapy, properly applied, produce comparable results, and the ability of the therapist rather than the properties of the agents employed determines the final results to be obtained; second, reasonably good results are obtained only in the early stages of the disease, and early diagnosis is, therefore, vital to success.

Dr. Modlin: Within the last five years, there has been an unusual reawakening of interest in the surgical treatment of early cancer of the cervix. The combination of the radical Wertheim hysterectomy with the Taussig pelvic lymphadenectomy has been popularized since 1939 chiefly by Meigs of Boston, because of the difficulty of control of pelvic lymph node metastases by irradiation. Meigs has emphasized that the possibility of surgical treatment of early cancer of the cervix should be explored in institutions equipped for investigative radical surgery, but it is to be deplored that large numbers of total hysterectomies are being done under the guise of the radical operation for cancer of the cervix by surgeons who are not capable of performing radical pelvic surgery. The pelvis does not lend itself well to enbloc lymph node dissection as does the neck and axilla, and the various node groups must be removed piecemeal rather than in an enbloc fashion. As emphasized by Heyman of Stockholm, it is possible that the failures following irradiation for early cancer of the cervix are due to those tumors which are biologically highly malignant and thus incapable of cure by any method. For these reasons, cancer of the cervix is still considered an irradiation problem at the Cancer Hospital, and this policy undoubtedly will be followed until it is shown that surgery can equal or exceed the 60 to 80 per cent curability of stage I lesions following competent radiotherapy. These remarks do not apply to the surgical treatment of cancer of the cervix which is recurrent following treatment by irradiation. At the present time, such patients are being treated at the Cancer Hospital by radical surgery with enbloc removal of the pelvic viscera when at all feasible. Again, this operation is of too recent origin to be assessed properly at this time.

CANCER OF THE LARGE BOWEL

Dr. Johnson: The most difficult decision which the pathologist has to make in the management of large bowel cancer is an estimate of the malignancy of polypoid lesions. The evidence relating polyps to cancer cannot be summarized adequately in the short period of time available. From the clinical standpoint, two facts should be kept in mind: First, some cancers may be present as polypoid tumors; all polyps therefore should be removed and subjected to thorough microscopic study. Secondly, the patient who has had a polyp of the large intestine is a better candidate for subsequent cancer than the patient without polyps. Close and prolonged followup of this group is therefore indicated.

In estimating prognosis, a thorough study of both the primary tumor and the lymph nodes is necessary. The primary tumor can be staged satisfactorily in terms of progressive involvement of the layers of the wall of the large intestine. The number and location of involved lymph nodes relative to the normal pathway of lymphatic drainage also should be recorded.

Dr. Modlin: Cancer of the colon and rectum accounted for 6 per cent of all cancers that were seen at Columbia prior to 1943. The diagnosis of these lesions is usually not difficult, yet it is discouraging to find that many patients have been treated symptomatically for months without having had a digital rectal examination. Since more than 50 per cent of these lesions are located within the reach of the examining finger, the diagnosis should be made easily by this examination alone. A careful history is of extreme importance since more than 97 per cent of these patients will exhibit one of a triad of symptoms consisting of abdominal pain, change in bowel habits or rectal bleeding. A proctoscopy should be a part of the physical examination of almost all patients since this is a simple, relatively safe procedure that can be performed in the doctor's office The barium enema is also an indispensable tool in the diagnosis of these lesions, and should be employed in the diagnosis of lesions above the reach of the examining finger and proctoscope. This is particularly true in all patients with unexplained bleeding from the rectum, weight loss or anemia.

In considering the present status of treatment

of cancer of the large bowel, it is important to emphasize one general principle, this is, the widest possible removal of the primary lesion and its lymph node draining area. If this concept is kept in mind, a rational approach to the current debate concerning sphincter saving operations in low lying cancer of the rectum becomes possible. The general rule at the Cancer Hospital is to resect all lesions within the reach of the examining finger by means of the Miles abdominoperineal resection. Although a successful primary anastomosis near the anal sphincter is not particularly difficult to accomplish, the paramount principle is the cure of the cancer and it is difficult to believe that a sleeve resection or pull-through procedure can result in as many cures as the Miles type of resection. Lesions located above the peritoneal resection are probably suitable for resection and reestablishment of continuity by an end-to-end anastomosis since it has been shown that most lymph node metastases occur in a proximal direction. In the last ten years, there has been a general adoption of one stage resection and primary anastomosis for most lesions of the intraperitoneal colon (at all sites other than the rectum and rectosigmoid). This eliminates the annoyance of a temporary colostomy and the necessity of multiple operations. Provided that certain principles are kept in mind in the technical execution of the procedure, there seems to be little doubt but that a low immediate operative mortality will result. In the last three years at the Cancer Hospital, 121 patients with cancer of the colon and rectum have been seen, 96 or 79 per cent of which have been resected with an operative mortality of 4 per cent.

With the present day low operative mortality, resection of the more advanced lesions is justifiable, and extension beyond the bowel to adjacent structures should in no sense be interpreted as evidence of inoperability. Cancer of the colon and rectum tends to remain localized for an appreciable period of time in many cases, and cure by enbloc resection of the primary lesion and its extension to neighboring viscera is a distinct possibility. In addition, resection of the primary lesion in the face of distant metastases (such as hepatic metastases) should be carried out in most patients. In a recent study at the Cancer Hospital of thirty-four patients with proven distant metastases, and who were subjected to palliative resections, there seemed to be no appreciable increase in the length of survival over the untreated case, but these patients were much more comfortable following operation and the procedure seems definitely worth while. Recurrence following radical resection for cancer of the large bowel should not necessarily be regarded as beyond hope of cure or palliation. There are reports in the literature of ten year arrest of cancer of the colon and rectum by wide resection of recurrences following a primary resection, and we have been gratified to find that excellent palliation has been obtained in several patients with apparent permanent arrest of the disease in a small percentage of patients.

Of the first 132 patients with cancer of the colon and rectum who were seen at the Cancer Hospital, 53 per cent were resected with an absolute five year cure rate of 22 per cent. Again it is emphasized that the figure of 22 per cent includes all patients whether treated or not, and that this figure approximates the 40 to 50 per cent five year rate of cure usually quoted when only operable cases are reported. It is to be emphasized that while the present day resectability rate at the Ellis Fischel Cancer Hospital is in the neighborhood of 80 per cent, this does not necessarily indicate improvements toward earlier diagnosis but is in all probability explained by resection of the more advanced cases in recent years.

SUMMARY

The diagnosis and management and five year results of treatment of the five most common types of cancer which have been seen at The Ellis Fischel Cancer Hospital have been reviewed. Of 2,318 patients with cancer seen at the hospital prior to 1943, 35 per cent were alive and free of disease at the end of five years. Although this figure may seem rather optimistic in light of the overall cancer problem, this is in part explained by the high incidence of readily curable cancer of the skin. The results obtained in these cases emphasize that with the present day low immediate risk of surgical and irradiation methods of treatment, any appreciable increase in the salvage of most types of cancer in the future will result largely from improvements toward earlier diagnosis.

HORMONE-RELATED DRUG FAILS IN TEST AGAINST RHEUMATOID ARTHRITIS

Pregnenolone, which showed some promise in early tests against rheumatoid arthritis, failed to produce good results against the disease in 18 patients, according to a report by New York doctors which appears in the May 27 *Journal of the American Medical Association.*

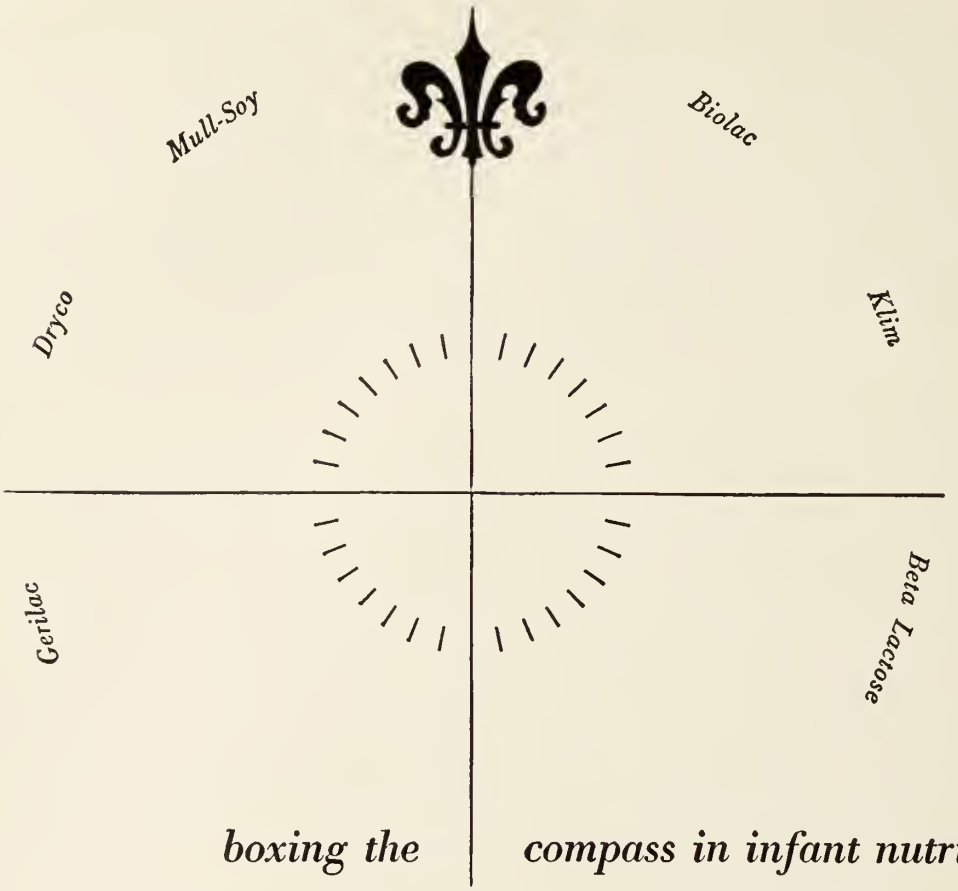
The study was made by Drs. C. Maynard Guest, William H. Kammerer, Russell L. Cecil and Solomon A. Berson of the Veterans Administration Hospital, Bronx, and the New York Hospital and Cornell University Medical College.

"Intramuscular injections of pregnenolone or pregnenolone acetate daily or two or three times a week resulted in no improvement in 17 cases of rheumatoid arthritis," the doctors say.

"One patient with rheumatoid arthritis of the spine improved objectively and subjectively. In one patient with rheumatoid arthritis of the spine there was minor improvement at the end of one week's treatment, but this was followed by gradual relapse in the face of continued therapy.

"It may be that larger amounts given over a longer period of time would have a more beneficial effect. The negative results have led us to believe that these agents offer no real promise in the treatment of rheumatoid arthritis."

The doctors found also that treatment with adrenalin and testosterone propionate failed to result in any consistant improvement in patients with rheumatoid arthritis.



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Case Report

MILD HISTOPLASMOSIS CLINICALLY RESEMBLING ATYPICAL PNEUMONIA AND ACCOMPANIED BY ERYTHEMA NODOSUM AND ARTHRITIS

ILSE B. HEILBRUNN, M.S.
LOCKWOOD, MISSOURI
AND
A. R. CAIN, M.D.
GREENFIELD, MISSOURI

IT IS NOW a well established fact that histoplasmosis is neither a rare nor always a fatal disease.[1, 2] With the advent of efficient laboratory procedures[3, 4] it is now in the realm of the family physician to make a diagnosis of histoplasmosis.

CASE REPORT

Mrs. E.A., a 41 year old housewife, was first seen on March 25, 1949, with complaints of chills and fever, weakness and ache across chest and shoulders.

History.—There had been no previous serious illnesses. The patient had resided for thirty years in Kansas. The last eleven years of her life had been spent in southern California. Since January 1949 she had lived in southern Missouri. She moved into an unpainted oak clapboard house containing much dust, debris and some rotting wood. Until the onset of her illness the patient was engaged in cleaning up the house.

Present Illness.—On March 21, 1949, she was out in the rain and got wet. The next day she began to feel weak and tired and her temperature rose to 100 F. Physical examination on March 25, four days after onset of symptoms, revealed a well nourished female not appearing acutely ill. Her temperature was 99.4 F. orally. Blood pressure was 120/80. Posterior pharynx was slightly inflamed. There was right, anterior cervical lymphadenopathy. The lungs were normal to auscultation.

At that time the diagnosis of upper respiratory infection was made and symptomatic medication prescribed. The patient was seen again in her home five days later, when she complained of severe nausea and vomiting. In the intervening days her temperature had risen to 102 F. She had sensations of chills and "tightness" over her chest. She had a hard, nonproductive cough. The lungs revealed harsh sibilant breath sounds bilaterally posterior. There were no rales.

Laboratory Findings.—A blood count on April 2, 1949, showed 4,350,000 red blood cells, 12 grams hemoglobin, 11,150 white blood cells with 1 juvenile, 20 stabs, 48 polymorphonuclear, 25 lymphocytes, 3 monocytes and 3 eosinophils. Repeat counts did not show much change. Agglutinations for tularemia, typhus and undulant fever were negative on two occasions. Urine did not show any abnormalities.

X-ray Findings.—A chest film taken April 1, 1949, showed multiple, small infiltrations in both lung fields and partial obliteration of the left costophrenic angle. Five days later the pleurisy had disappeared but the vascular markings of the right lung were more evident.

These films were submitted to Dr. C. A. Brasher, Mount Vernon State Sanatorium, for his opinion. He stated that in view of the patient's previous residence in southern California and the fact that the appearance of the film was not typical for tuberculosis, coccidiomycosis should be considered.

Sputum and blood for complement fixation tests were sent to the U. S. Public Health Service Laboratory at the University of Kansas Medical Center, Kansas City, Kansas. The sputum was positive for Histoplasma capsulatum and the serum gave a four plus complement fixation for histoplasmosis. The sputum was reported as negative for tubercle bacilli by the Missouri State Public Health Laboratory.

Skin tests, for which material was furnished by the U. S. Public Health Service, were positive for tuberculin and histoplasmin, but negative for coccidioidin and blastomycin.

Course.—The patient was hospitalized on April 1, 1949. Her temperature ranged between 100 and 102 F. during the first three days of her hospital stay and then fell to normal. The patient received duracillin, 1 cc. intramuscularly, twice a day and 1 gram sulfadiazine every four hours for six days. She was discharged after ten days, feeling perfectly well.

About April 20, 1949, the patient developed pain of the left wrist following a strain. Later, pain and swelling appeared in the right wrist, elbow and shoulder and still later in the right ankle. Then the left ankle became swollen and painful. The pain and swelling gradually disappeared except for the swelling of both ankles, which was still present at the end of June. About May 1 hard red "bumps" developed under the skin in the left calf. Later a number about the left ankle were noted and then one on the right calf and the inner aspect of both knees. These lesions were red, firm and indurated, slightly painful and up to one half inch in diameter. They disappeared slowly during the last week in May.

Follow-up x-ray studies showed progressive clearing of the lung lesions, although several small infiltrates could still be outlined upon close inspection on a film taken July 3, 1949. The last film, taken in December 1949, was essentially normal. It is still too early to determine whether calcifications will appear at the site of the lesions.

Complement fixation tests were positive on April 7, April 19, and September 21, 1949, and suspicious on May 17, June 29, July 15, 1949, and February 17, 1950.

The patient feels well and had no complaints except that at the time the last x-ray was taken, she had again a dry cough.

DISCUSSION

This case of histoplasmosis is of particular interest because of short duration and the mildness of the illness which clinically resembled atypical pneumonia although the x-rays did not support this diagnosis. Especially important was the development of arthritis and skin lesions resembling erythema nodosum. While these findings may represent manifestations of a hypersensitivity reaction to penicillin, they may possibly be manifestations of the histoplasma infection in this patient. If so, they constitute the first report of this condition accompanying histoplasmosis, although its occurrence with coccidiomycosis is well known. Still, another finding of interest in this case is that it seems probable that the patient was infected some time

From the Lockwood Memorial Hospital, Lockwood, Missouri.

between January 1, when she moved into her present home, and March 22, when symptoms developed.

The husband of the patient gave a positive reaction to tuberculin and histoplasmin, but complement fixation test and x-rays were negative for histoplasmosis.

Acknowledgment: An epidemiologic investigation of this case was carried out by Dr. M. L. Furcolow and his staff of the Office of Field Studies, Division of Tuberculosis, U. S. Public Health Service, University of Kansas Medical Center, Kansas City, Kansas. Their help and advice in the preparation of this manuscript is greatly appreciated.

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CALIFORNIA REPORT INDICATES Q FEVER IS TRANSMISSIBLE BY PERSONAL CONTACT

A report from Los Angeles indicates that Q fever may be transmitted from person to person.

Three persons apparently have contracted the disease by attending a patient, Dr. David L. Deutsch and E. Taylor Peterson, a laboratory worker, of Wadsworth Hospital, Veterans Administration Center, say in the May 27 *Journal of the American Medical Association.*

The mode of transmission of the disease was not determined.

More than 50,000 persons in the Los Angeles area probably have been infected during recent years with the microbe that causes Q fever, doctors and an epideminologist of the National Institute of Health, the U. S. Public Health Service and the California State Department of Public Health announced recently.

The disease was found to have occurred in the metropolitan area of Los Angeles in 1947. It commonly is characterized by headache, high fever, severe sweats and pneumonia-like changes in the lungs. Nine deaths from Q fever have been reported.

A study of Q fever made in the southern California area where infection with the microbe is widespread among cattle suggests that humans may contract the infection by occupation in dairy or livestock industries, use of raw milk and residence within one fourth a mile of places where cattle are maintained or beef is processed.

PSYCHOLOGIST GIVES REQUIREMENTS IN SCHOOL LIGHTING

Certain basic requirements in school lighting are advised by Miles A Tinker, Ph.D., professor of psychology at the University of Minnesota, Minneapolis, in a report to the Council on Physical Medicine and Rehabilitation of the American Medical Association.

Dr. Tinker's report appears in the May 27 *Journal of the American Medical Association.*

"In prescribing illumination for any school, one should coordinate the intensity and distribution of light with the decoration," he says.

"Several illuminants, varying in character, are available. Variation usually is accompanied with some changes in color of the light. The more common artificial illuminants are tungsten filament incandescent light, mercury arc light and fluorescent light.

"In ordinary seeing situations such as found in schools, efficiency of seeing is just as good under one as under any other of the illuminants. Researchers of Harvard University claim that the quality of light derived from fluorescent lamps, no matter what combination of colors is used, is both unpleasant and distracting to workers in reading rooms.

"A recently devised fluorescent tube appears to yield less disagreeable light. Under the light of many of the fluorescent tubes, colors in decoration tend to go 'flat' and the colors of objects frequently are altered in appearance.

"The following points will aid in eliminating undesirable distribution of illumination and brightness in the school: 1. Avoid bright peripheral light sources, such as low-hanging fixtures; 2. Avoid as far as possible the use of glazed paper, highly polished desk tops and other working surfaces; 3. Avoid any marked changes in brightness from one area to another; 4. Keep the surface brightness of light fixtures in the field of vision within the limits suggested herein; 5. Maintain, in general, as even a distribution of light as possible over work surfaces."

THREE-DIMENSIONAL PHOTOGRAPHY OF HEART IN ACTION DESCRIBED

Three-dimensional x-ray photography of the heart and its chambers in action is described in the June 10 *Journal of the American Medical Association* by two Stockholm, Sweden, licentiates in medicine.

O. Axen and John Lind of the Karolinska Institute at Norrtulls Hospital report that this is performed by means of synchronized roentgenograms in two planes at right angles. A special table permits the taking of 10 pictures in one ray direction and 10 at right angles in the course of eight seconds.

A contrast is obtained by the injection of an opaque material into the veins. The series of photographs permit following the passage of the contrast medium through the different chambers of the heart.

By the dual photography, frontal and lateral views of the heart in the same phase of the respiratory and heart cycle can be obtained, the authors point out. A "three dimensional" view is provided by placing side by side the photographs taken simultaneously from the two positions.

"This renders possible a three-dimensional appreciation of the capacity and configuration of the separate chambers of the heart," they report. "The method is of aid in the establishment of normal standards in the living subject, and it affords increased opportunities for detection of abnormalities in the size or shape of the cavities of the heart and the great thoracic vessels.

"Moreover, the taking of roentgenograms in two different projections facilitates more nearly precise identification of each anatomic portion of the heart. Serial photography gives a concept of the dynamics of the heart. The dye can be accurately localized in the heart, and the changes in capacity of the chambers during the heart cycle can be estimated better."

The series of photographs is taken automatically by turning on a switch after the injection of the contrast medium. The speed can be varied from five to ten seconds for the series, if desired.



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PRESIDENT'S PAGE

The Committee on Scientific and Postgraduate Work is in the process of arranging the scientific program for the 1951 Annual Session of the Association. The meeting will take place in Kansas City, April 22 through 25, 1951. The Committee invites and solicits the help of members.



For the first time in many years, medical and surgical discussions will run concurrently at three sessions. These will consist of short papers on general topics of interest to the busy practitioner. A clinical pathologic conference has been scheduled for one of the afternoon sessions. General programs will be held on each of the three scientific meeting days.

Please forward your suggestions for program topics, suggested speakers or your request to appear on the program to the Association office by July 20. If you desire to be on the program, include the title of your presentation in your communication.

The Committee is most anxious to have every member participate (1) by attending the meeting, (2) by assisting in arranging the program.

W. A. Bloom

Editorials

C. EDGAR VIRDEN, M.D., PRESIDENT-ELECT

C. Edgar Virden, M.D., Kansas City, was elected President-Elect of the Missouri State Medical Association at the 92nd Annual Session held in St. Louis, March 26 to 29, 1950. He will serve as President-Elect until the next Annual Session when he will be installed as President.

Dr. Virden brings to his new office much ability and experience in organization work, both medical and civic. By selecting Dr. Virden, which the House of Delegates did unanimously, the House assured the Association that its affairs will be guided by experienced, able and interested hands during 1951.

Dr. Virden was born in Kansas City, Missouri, on April 4, 1895. He had his early schooling in Kansas City, Kansas, while living on a farm at the edge of the city. He spent several years in El Paso, Texas, where he attended high school. He went to the University of Chicago for one year, 1912-1913, then entered the University of Missouri where he received his A. B. degree in 1917.

He obtained his medical training in Northwestern University, receiving his degree from that school in 1920. He interned at St. Joseph Hospital, Kansas City.

After two years of general practice in Norton, Kansas, Dr. Virden became associated with Dr. J. L. McDermott, pioneer Kansas City radiologist, who practiced at Bell Memorial Hospital (now University of Kansas), St. Margaret's Hospital, Kansas City, Kansas, and St. Joseph Hospital, Kansas City, Missouri. Since Dr. McDermott's death in 1936, Dr. Virden has been chief radiologist at St. Joseph Hospital. Dr. Virden also is assistant Professor of Radiology at the University of Kansas School of Medicine.

In 1920 Dr. Virden married Margaret Hughes of Kansas City, Kansas. They have two children, Mrs. Virginia Dominick, and Herbert Hughes Virden, M.D., now associated with Dr. Virden. Dr. and Mrs. Virden have four grandchildren.

Dr. Virden has served the medical profession in Missouri faithfully. He has been on the Council of the Association for several years and on the council of the Jackson County Medical Society for several terms. He was president of the Jackson County Medical Society in 1945 and at present is chairman of the cancer committee. He received the award of merit for starting the Cancer Detection Center. He is a past president of the Missouri Division of the American Cancer Society. He started the Medical Foundation Fund in 1946.



C. EDGAR VIRDEN, M.D.

Not restricting his medical interests to the state, Dr. Virden is chairman of the refresher course committee of the Radiological Society of North America; chairman of the board of chancellors of the American College of Radiology; diplomate of the American Board of Radiology; member of the Kansas City Southwest Clinical Society, the Kansas City Academy of Medicine, the Rocky Mountain Radiological Society and Health and Welfare Committee of the Kansas City Chamber of Commerce. He has been consultant for the United State Public Health Service at Leavenworth, Kansas, for about twenty-five years. He is a member of the Beta Theta Pi and Phi Beta Pi fraternities and is a member of the Kansas City Club and the Mission Hills Country Club.

The House of Delegates has chosen well its President-Elect for 1950 and President for 1951.

Organization and Economics

NEWS NOTES

John F. Bowser, M.D., Kansas City, spoke before the Optimist Club of Independence on May 10 on "Radiologic Experiences in the E. T. O."

W. A. Bloom, M.D., Fayette, spoke before the Rotary Club of Fayette on May 17 and discussed "National Health Insurance."

P. J. O'Connell, M.D., Kansas City, was named "General Practitioner of the Year" by the Greater Kansas City Academy of General Practice.

Robert Mueller, M.D., St. Louis, addressed the Kiwanis Club of Sikeston on May 16 on "Compulsory Health Insurance."

Mr. T. Hartley Pollock, St. Louis, attorney, spoke before a luncheon meeting in Sikeston on June 3. The meeting was sponsored by the Tri-County Medical Woman's Auxiliary. Mr. Pollock spoke on "Socialized Medicine."

James Barrett Brown, M.D., St. Louis, has been elected president of the Washington University Medical Alumni Association. A. N. Arneson, M.D., St. Louis, was elected first vice president; Wendell G. Scott, M.D., St. Louis, second vice president, and George W. Ittner, M.D., St. Louis, secretary-treasurer.

John S. Knight, M.D., Kansas City, was installed as president of the Kansas City O. O. R. L. Society on May 17. A. W. McAlester, III, M.D., was elected president-elect; Winfred L. Post, M.D., Joplin, vice president, and B. C. Trowbridge, M.D., Kansas City, secretary.

MUSINGS OF THE FIELD SECRETARY

A number of county medical societies are finding various ways of improving the flavor of their meetings these days. One important such means used by some societies is that of having more dinner meetings with the ladies present. It is definitely not out of order for doctors and their wives to get acquainted with other doctors and their wives in a few places here, there and yon.

Some of the society programs may be designed to be of particular interest and value to the ladies. On other occasions the women may desire to plan their own after dinner activity through Auxiliary organization business or otherwise.

Attending a county society meeting recently brought forth an explanation that the below average attendance was due to breaking the rule of "usual dinner affairs with the ladies present."

POLIOMYELITIS CARE INSTRUCTIONS

The following list of hospitals or centers have indicated their willingness to accept and care for poliomyelitis cases and the number of beds they can provide for these cases:

In Kansas City: Mercy Hospital, 50 beds; Menorah Hospital, 25 beds; St. Lukes Hospital, 20 beds; General Hospital, 60 beds at No. 1 and 20 beds at No. 2.

In outstate Missouri: Methodist Hospital, St. Joseph, 20 beds; Burge Hospital, Springfield, from 35 to 40 beds (after July 15); University Hospital, Columbia, 15 beds; St. Francis Hospital, Cape Girardeau, 25 beds; Poplar Bluff Hospital, Poplar Bluff, 10 beds; Levering Hospital, Hannibal, 10 beds; McCune-Brooks Hospital, Carthage, 4 beds.

In St. Louis: St. Anthony's Hospital, 70 to 90 beds; Missouri Baptist Hospital, 8 beds; St. John's Hospital, 10 beds; St. Louis Children's Hospital, 10 beds; St. Louis City Hospital, 37 beds (county and city patients); Barnes Hospital, 8 beds.

It is recommended by the Division of Health and the Advisory Committee on Poliomyelitis that physicians contact the nearest hospital to them. If that hospital is full, then physicians should call the Missouri Division of Health, Jefferson City (phone number 3270) where information will be given on the next nearest available hospital bed for his patient.

In St. Louis, the Medical Society Exchange (telephone JE 5858) will have information on available bed space in St. Louis.

It is urgently requested that all physicians report cases to the Division of Health as promptly as possible.

The Missouri State Medical Association was one of the organizations invited and requested to participate in an advisory group under the able leadership of Burford G. Hamilton, M.D., Director of the Missouri Division of Health. A number of meetings of this advisory group with the Division of Health have been held to consider ways and means of locating facilities and personnel throughout the state for the care of poliomyelitis cases occurring in the state, particularly those in rural areas. Dr. Hamilton charged a subcommittee to survey the state for the location of such facilities and the list presented was compiled.

FACT FINDING COMMITTEE REPORT "STEAL CONTRACT"

March 1, 1950, over a half million U. S. Steel employees obtained a contract with the Pittsburgh Hospital Service Plan. The Kansas City Area Blue Cross-Blue Shield agreed to this contract coverage for U. S. Steel subsidiary workers in this area. This contract includes these unfavorable features: payment for services in *any* hospital, for services from *any* physician, anesthesia when administered by a *hospital* employee and *diagnostic* x-ray coverage.

Now that Blue Cross-Blue Shield has become so big and popular, locally and nationally, because of



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the confidence of the people in the ethical physicians and hospitals, and because of the wide acceptance and financial stability of these plans, big pressure from labor organizations, or big weakness in medical leadership in the big eastern Blue Cross-Blue Shield Plans, is causing worrisome changes to creep in.

All local participating physicians under Blue Shield recently received the April 1950 issue of "The Cross and Shield" pamphlet, issued by the Kansas City Area Blue Cross-Blue Shield. Its article, titled "Flying Saucers," belittles rumors regarding "Steel Contract" and concludes that finding out the facts will disprove all fears.

The facts which caused me to oppose these above named features, and caused me to resign from the Blue Cross Corporate Board, are: that even though Blue Cross-Blue Shield pay nonaccredited hospital bills and for the services of anyone claiming to be a doctor, to the subscriber direct, on a cash indemnity basis, the plan will still be paying for them and risk cost for the services will be borne by Blue Cross-Blue Shield. Will expansion of bed capacity and usage of inferior hospitals or the claim that some of our nursing homes are hospitals (and who can say they are not, for there is no federal, state, county or city governmental unit defining what is and what isn't a hospital), cause Blue Cross to become financially unsound or to dangerously reduce its present payments to our first class hospitals? What will the cost of unnecessary services of just any physicians do to Blue Shield? Even though anesthesia by hospital employees may be paid to the hospital as hospital service or to the subscriber on cash indemnity basis, it is still giving concealed approval to the hospital engaging in the practice of medicine and the promotion of nurse or technician anesthetists.

Diagnostic x-ray coverage is in my opinion bound to financially embarrass Blue Shield. I have always insisted that any insurance coverage must adhere to the rule that the penalty must exceed the benefit for the coverage to be financially sound. Life insurance is sound because the penalty—death—is greater than the benefits—cash. Accident insurance is sound because you have to risk an accident to collect. Hospitalization in our accredited hospitals has been sound. The patient's apprehension, the additional expense, the hospital regulations, the confinement away from home, job and family are penalties which people try to avoid.

Surgery coverage is sound because people fear surgery and it usually hurts. House calls and office visits and diagnostic x-ray coverage are not sound because they have no penalty feature and they will always lose money and fail. To offer any of these items under Blue Cross-Blue Shield, which are "cradle to grave" plans to subscribers who keep their payments up (which is something that no insurance company offers), invites financial failure. They would require government subsidy, or some other Santa Claus, to continue, and would then be another welfare proposition and not insurance.

The "Steel Contract" is only the beginning. There will be more groups to follow, other broader demands, other inroads. The union promoters don't understand the reasons for the position taken by ethical physicians and hospitals for the good of the people in general, after years and years of experience, and now squeeze in other welfare gains. Will this price voluntary plans out of the field? Will this bring government subsidy, after which the government can take the plans over and we will have state medicine?

Most people think that anything that gains more subscribers for voluntary plans helps in the fight against state medicine. The Blue Cross-Blue Shield movement is not the place to settle a question of, for or against state medicine. That is not what the plans were organized for. They are, up until now, a sound voluntary cooperative plan to enable budgeting for and prepaying hospital care and those features of medical and surgical care that can be actuarily figured for. If the people want state medicine or the government leaders in power force it on them these plans are not going to prevent it. The real issue is: is there to be a Welfare state and Socialism? When our plan weakens to let in welfare features, we are contributing to the trend toward the welfare state.

Neither are the Blue Cross-Blue Shield plans the place to solve the existing differences between the practitioners of the healing arts. The plans were not organized or operated for that purpose. These plans are the best that the Doctors of Medicine and the accredited hospitals have to offer to date. Let the other practitioners and their hospitals formulate and present prepayment plans for their services to the people. If the people prefer to purchase this type of coverage, from them or from the insurance companies offering such contracts, let them do so. I'm for private enterprise.

I fear and oppose the goblin that I see. If it is a "flying saucer," I hope it is not made of "steal."

J. Harvey Jennett, M.D.

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ANNUAL BANQUET

Annual Banquet: 1, 3, 4, 6, 8. *Guests attending the banquet.*

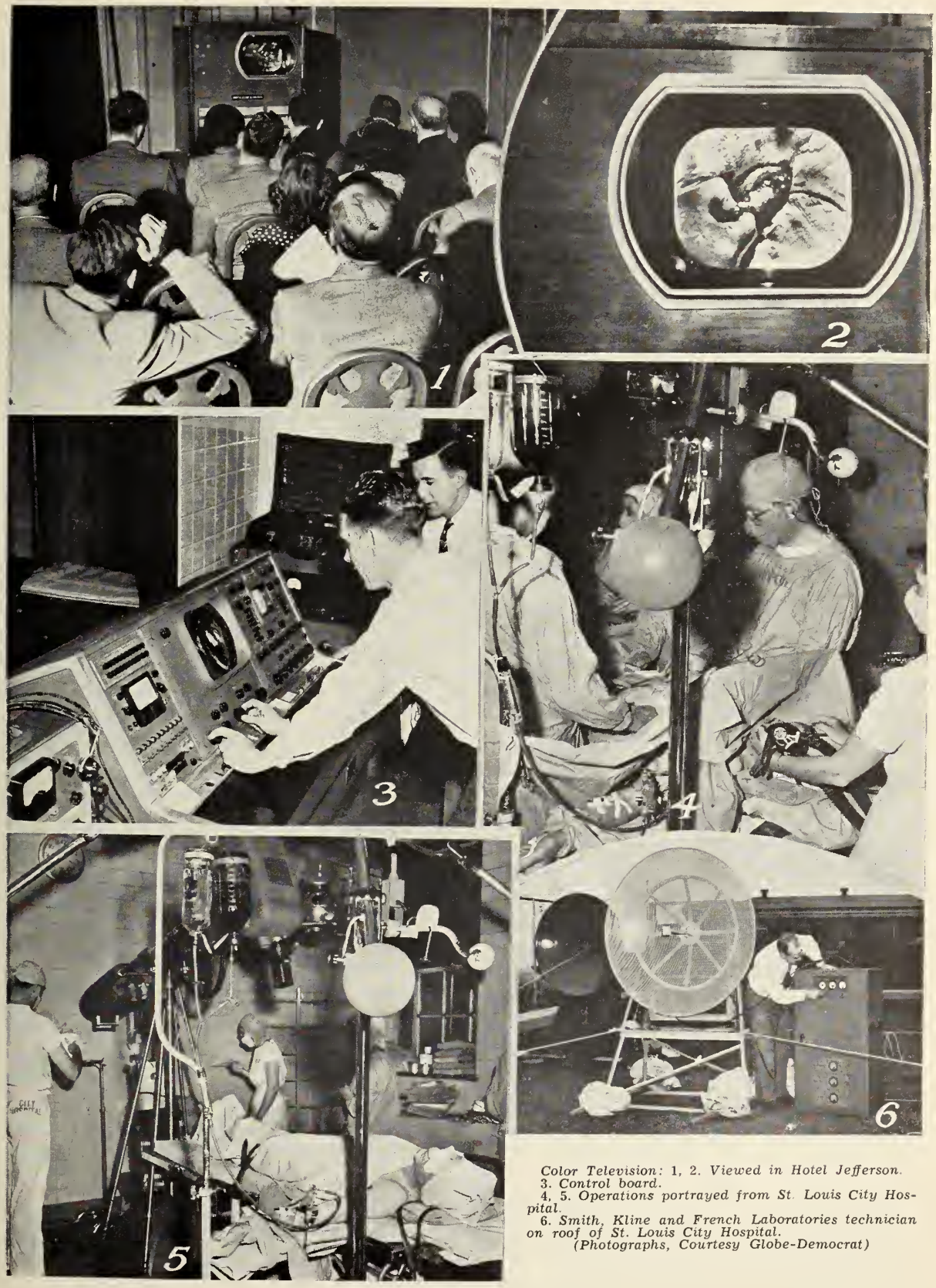
2. *Wallis Smith, M.D., Springfield, presented the gavel to W. A. Bloom, M.D., Fayette.*

5. *Mr. Alex Dreier, CBS commentator, who delivered the banquet address.*

7. *Mrs. W. C. Cheek, Springfield, presented a bond to the Essay Contest winner, Kent Morest, Kansas City.*



Annual Session: 1. *Incoming officers.*
2. *Mr. L. M. Lang, Smith, Kline and French Laboratories; Wallis Smith, M.D., Springfield, and Armand D. Fries, M.D., St. Louis.*
3, 5. *Joseph S. Lawrence, M.D., Washington, D. C., addressed presidents and secretaries.*
4. *Mrs. R. C. Haynes, Marshall, and Robert Mueller, M.D., St. Louis, at Auxiliary luncheon.*
6. *Mrs. David B. Allman, Atlantic City, N. J.; Wallis Smith, M.D., Springfield, and Mrs. W. C. Cheek, Springfield, at Auxiliary luncheon.*
7. *A. N. Arneson, M.D., and J. W. Thompson, M.D., St. Louis.*
(Photographs, Courtesy Globe-Democrat)



Color Television: 1, 2. *Viewed in Hotel Jefferson.*
3. *Control board.*
4, 5. *Operations portrayed from St. Louis City Hospital.*
6. *Smith, Kline and French Laboratories technician on roof of St. Louis City Hospital.*
(Photographs, Courtesy Globe-Democrat)

MISSOURI STATE MEDICAL ASSOCIATION

Centennial Anniversary
Ninety-Second Annual Session
St. Louis
March 26, 27, 28, 29, 1950

MINUTES OF THE HOUSE OF DELEGATES

Crystal Room, Hotel Jefferson
Sunday Session

The first meeting of the House of Delegates of the Ninety-second Annual Session of the Missouri State Medical Association was called to order at 2:00 p.m., March 26, in the Crystal Room, Hotel Jefferson, St. Louis, with F. T. H'Doubler, M.D., Springfield, Speaker, presiding.

Officers, Councilors and Delegates present during the Annual Session follow:

Officers

President.....Wallis Smith, Springfield
President-elect.....W. A. Bloom, Fayette
Secretary.....H. E. Petersen, St. Joseph
Treasurer.....C. E. Hyndman, St. Louis
Vice President.....J. C. Creech, Troy
Vice President.....E. J. McIntire, Carthage
Vice President.....H. M. Henrickson, Poplar Bluff

Councilors

1st District.....Donald M. Dowell, Chillicothe
2nd District.....W. F. Francka, Hannibal
3rd District.....J. W. Thompson, St. Louis
4th District.....Otto W. Koch, Clayton
5th District.....J. F. Jolley, Mexico
6th District.....R. W. Kennedy, Marshall
7th District.....C. Edgar Virden, Kansas City
8th District.....W. S. Sewell, Springfield
9th District.....E. Claude Bohrer, West Plains
10th District.....F. W. Hall, Cape Girardeau

Delegates
First District

Buchanan.....Joseph Fisher, St. Joseph
Buchanan.....L. P. Forgrave, St. Joseph
Buchanan.....O. Earl Whitsell, St. Joseph
Carroll.....Carl Reed, Carrollton
Clay.....Lerton V. Dawson, Excelsior Springs
Grundy-Daviess.....Fred K. Wilson, Winston
Harrison.....M. Gearhart, Bethany
Caldwell-Livingston.....Joseph F. Gale, Chillicothe
Mercer.....A. S. Bristow, Princeton
Nodaway-Atchison-Gentry-Worth.....Henry C. Bauman, Maryville
Nodaway-Atchison-Gentry-Worth.....Frank B. Matteson, Grant City
Platte.....Silas L. Durham, Dearborn
Ray.....M. L. Masterson, Richmond

Second District

Chariton-Macon-Monroe-Randolph.....T. S. Fleming, Moberly
Lewis-Clark-Scotland.....P. W. Jennings, Canton
Lewis-Clark-Scotland.....J. R. Bridges, Kahoka
Linn.....John R. Dixon, Brookfield
Marion-Ralls.....B. L. Murphy, Hannibal
North Central.....W. Herington, Green City
North Central.....G. E. Grim, Kirksville

Third District

St. Louis City.....A. N. Arneson, St. Louis
St. Louis City.....Emil A. Burst, St. Louis
St. Louis City.....Harry R. Ecterhoff, St. Louis
St. Louis City.....Edwin C. Ernst, St. Louis
St. Louis City.....Armand D. Fries, St. Louis
St. Louis City.....S. Albert Hanser, St. Louis
St. Louis City.....A. C. Henske, St. Louis
St. Louis City.....R. Emmet Kane, St. Louis
St. Louis City.....Charles L. Klenk, St. Louis
St. Louis City.....Louis H. Kohler, St. Louis
St. Louis City.....Curtis H. Lohr, St. Louis
St. Louis City.....Robert C. McElvain, St. Louis
St. Louis City.....Charles E. Martin, St. Louis
St. Louis City.....Robert Mueller, St. Louis
St. Louis City.....Arthur W. Neilson, St. Louis
St. Louis City.....James A. O'Dowd, St. Louis
St. Louis City.....Jacob G. Probstein, St. Louis
St. Louis City.....F. G. Pernoud, St. Louis
St. Louis City.....A. J. Raemdonck, St. Louis
St. Louis City.....Llewellyn Sale, St. Louis
St. Louis City.....Victor E. Scherman, St. Louis
St. Louis City.....Robert E. Schlueter, St. Louis
St. Louis City.....John F. Shaner, St. Louis
St. Louis City.....Jerome I. Simon, St. Louis
St. Louis City.....Carl F. Vohs, St. Louis
St. Louis City.....Joseph E. Von Kaenel, St. Louis
St. Louis City.....G. J. L. Wulff, Jr., St. Louis
St. Louis City.....Oliver B. Zeinert, St. Louis

Fourth District

Franklin.....Frank G. Mays, Washington
Lincoln.....J. C. Creech, Troy
St. Charles.....J. M. Jenkins, St. Charles
St. Louis County.....E. R. Brown, University City
St. Louis County.....C. P. Dyer, St. Louis
St. Louis County.....F. L. Finley, Overland
St. Louis County.....J. R. Meador, Clayton
St. Louis County.....John O'Connell, Overland
St. Louis County.....Roy Walther, Sr., Overland

Fifth District

Audrain.....Glen P. Kallenbach, Mexico
Boone.....A. R. McComas, Sturgeon
Callaway.....J. C. Caldwell, Fulton
Cooper.....B. M. Stuart, Boonville
Howard.....William J. Shaw, Fayette
Miller.....W. L. Allee, Eldon
Moniteau.....J. P. Burke, Jr., California
Montgomery.....E. J. T. Andersen, Montgomery City
Morgan.....J. L. Washburn, Versailles

Sixth District

Bates.....John M. Cooper, Butler
Case.....Harry B. Neis, Harrisonville
Henry.....Hugh Walker, Clinton
Pettis.....Peter V. Siegel, Smithton
Saline.....R. C. Haynes, Marshall
Vernon-Cedar.....C. B. Davis, III, Nevada

Seventh District

Jackson.....A. N. Altringer, Kansas City
Jackson.....Victor B. Buhler, Kansas City
Jackson.....Ralph E. Duncan, Kansas City
Jackson.....B. Landis Elliott, Kansas City
Jackson.....Carl R. Ferris, Kansas City
Jackson.....Max Goldman, Kansas City
Jackson.....R. Lee Hoffmann, Kansas City
Jackson.....Martin P. Hunter, Kansas City
Jackson.....Merritt H. Kimball, Kansas City
Jackson.....John S. Knight, Kansas City
Jackson.....A. W. McAlester, III, Kansas City
Jackson.....H. L. Mantz, Kansas City
Jackson.....Herbert J. Rinkel, Kansas City

Eighth District

Barton-Dade.....Rudolph Knapp, Golden City
Dallas-Hickory-Polk.....Doyle C. McCraw, Bolivar
Dallas-Hickory-Polk.....J. R. O'Brien, Bolivar
Dallas-Hickory-Polk.....G. C. Plummer, Buffalo

Greene.....Durward G. Hall, Springfield
Greene.....F. T. H'Doubler, Springfield
Greene.....A. Denton Vail, Springfield
Jasper.....O. T. Blanke, Joplin
Jasper.....R. M. Ferguson, Webb City
Ozarks.....Kenneth Glover, Mount Vernon
Ozarks.....J. M. Threadgill, Forsyth
Webster.....E. G. Beers, Seymour

Ninth District

Carter-Shannon.....T. W. Cotton, Van Buren
Laclede.....J. H. Summers, Lebanon
Phelps-Crawford-Dent-Pulaski.....R. E. Breuer, Newburg
Phelps-Crawford-Dent-Pulaski.....T. C. Buckthorpe, Waynesville
Phelps-Crawford-Dent-Pulaski.....F. A. Elders, Cuba
Phelps-Crawford-Dent-Pulaski.....G. E. Joseph, Salem
South Central.....S. G. Kramer, Houston
South Central.....R. A. Ryan, Mountain Grove
South Central.....Rollin H. Smith, West Plains

Tenth District

Cape Girardeau.....Charles T. Herbert, Cape Girardeau
Dunklin.....Paul Baldwin, Kennett
Mineral Area.....Ben Bull, Ironton
Mineral Area.....Marvin Grossman, Fredericktown
Mineral Area.....George L. Watkins, Sr., Farmington
New Madrid.....J. J. Killion, Portageville
Pemiscot.....C. F. Cain, Caruthersville
Perry.....J. J. Bredall, Perryville
Scott.....W. O. Finnev. Chaffee

SPEAKER: Members of the House of Delegates, Ladies and Gentlemen, will you please come to order, and will you stand while the Reverend Eric Leibner of the Eden Publishing Company, St. Louis, delivers the invocation?

REVEREND LEIBNER: Eternal God, our Father, in Whom we live and move and have our being, and Who doth hold the issues of life and death in the hollows of Thine hand, we recognize Thee as the great God and Father of all Thy children, walking here so often in darkness upon the Earth. Let me thank Thee that Thou hast given unto humankind the power to serve in a capacity with which Thou dost bless each one. And as we gather in this session for this great convention, we will give thanks unto Thee that Thou has given unto man the talent and the ability to alleviate the ills of humanity and to lift higher the entire welfare of Thy children. We pray that Thy blessing may rest upon each individual member of this Association and upon each member of the entire medical profession, who so often in a self-sacrificing way give of their time, their talent and their efforts for the welfare of humanity. We thank Thee for the loyalty and the faithfulness of all those, Thy servants in this profession, who have gone out in the past and are the inspiration of those who follow after them, and pray that Thou wouldst make each man who takes these oaths loyal and faithful in the performance of the same; grant unto these Thy servants an awareness of Thy nearness as they minister unto Thy children. May they be conscious of the fact that as they practice the ministry of healing, they are servants of Thine and instruments in Thine hands. Bless the lives of all those with whom they come in contact. We pray, Oh Lord, that Thou will grant unto this Association a successful and a profitable session, and that each one leaving here at its close may go with the confidence of carrying with him or her new visions and new wisdom that shall help them in the performance of their task. We pray, Oh Lord, that Thou wouldst support us all throughout this life, even as we pray that Thou wouldst bring quickly a genuine peace upon the Earth, that men may live among men, of whatever race, creed or color they may be, in peace and brotherhood. Give unto each of us Thy support through life until the shadows lengthen and the evening comes, till the busy world is hushed and the fever of life is over and our task is done then of Thy tender mercy grant unto us a safe lodging, a Holy rest and the peace at last, we ask it for Thy Holy Name's sake. Amen.

SPEAKER: Thank you, Reverend Leibner. It is now my pleasure to introduce to you J. Earl Smith, M.D., Health Commissioner of the City of St. Louis, who will bring you welcome to St. Louis.

J. EARL SMITH, M.D., St. Louis: Dr. H'Doubler and Dr. Scherman, Delegates of the Missouri State Medical Association. The Honorable Joseph M. Darst, Mayor of St. Louis, has requested me as Health Commissioner of St. Louis to extend to the Officers and Delegates to the Missouri State Medical Association a most hearty welcome to our beloved City on this, the 100th Annual Meeting. Mayor Darst also wishes you a most successful convention and also at odd moments he and I both expect that you will have a bit of fun.

It is highly significant that you should choose St. Louis for your centennial meeting just as it was in St. Louis that your organization was first conceived and later successfully delivered with all the medical skill and loving attention that a new boy at that time merited. I say this because the Missouri State Medical Association has survived these one hundred years without benefits of vitamins, penicillin, astrology and the newer psychiatric methods, with apologies to the psychiatrists. Such a child could only be born of parents whose mental, physical and hormone equipment was such that we now know that rabbits, frogs and other animals of the animal kingdom would have reacted to then, as now, if injected with the proper human materials.

Today we find our State Medical Association full grown, or I should say relatively full grown because full grown intimates ultimate death and we shall have none of that for our State Medical Association. We find it also healthy and full of zest for life. This portends as it is often remarked by the length and shadows of great men, that it does not take an astute observer to recognize the significant role of the individuals for good or evil in this sad world today. Recent and unpleasant barbarism of slave states and the brutalities of war occupy the thoughts of sensitive men and women to such a large degree that we take for granted that civilization to which the extraordinary accomplishments of medical science and service to humanity have contributed so much. So it is well that we pay homage to the great leaders, great in medicine and greatest humanitarians who have given honor to and have subsequently been honored by the Missouri State Medical Association during its one hundred years' history, and those who have served in lesser capacity the Golden Rule takes on substance.

It is not often that I have the privilege of addressing such a distinguished audience of medical men so I cannot resist the temptation to talk a bit about the relationship between the practicing physician and public health. I have heard it said on a few occasions, very few, that the practicing physician and public health departments do not get along any too well. Well, if they do not, I can assure you that in all such cases it is the entire fault of the Health Officer. Public health is medicine and medicine is public health. Medicine is the fountain head of public health. Physicians, most of them engaged in private practice, have always been at the forefront of public health advance. They alone at the start were largely responsible for the organization of the Federal Health Services, State and Local Boards of Health and the great national voluntary agencies now so numerous in this sector. It was the private practitioners of medicine who, until recently, became the full time executives of health departments and na-

tional voluntary agencies learning their specialty the hard way as they went along. Physicians, in general, share the credit as fully as any with such astonishing benefits as have accrued to this nation and reduced morbidity and mortality.

It is still largely the physician in private practice whose influence on the people seeking his advice will determine the extent to which this comunity and the nation will enjoy the further benefits of public health work. Whether he knows it or not and whether he is socially or individually minded, every physician wields an important influence on his followers, on the community and all health matters. Nothing is more important to safeguarding and improving the health of the commonwealth than the support and guidance of public health work by a physician.

Here it is pertinent to make mention of a fact which you already know—that of old age, which is fast becoming problem number one to the health department, physicians in private practice, hospitals and their various allied professional groups. Our country is fast setting into a new population pattern. There is a relatively marked shift in distribution of population from youth to older age. Since 1900 the birthrate has dropped by one third. Since 1924 immigration has almost stopped. These factors, together with the marked decrease in mortality from infectious diseases are responsible for the change in the age population as a whole. For instance, in 1900, less than 20 per cent of the people were 45 years of age or over. In 1940 more than 25 per cent were 45 years of age or over. Population experts, such as Louis I. Dublin, tell us that this trend will continue. He estimates that by 1960 33 per cent and by the year 2000, 40 per cent of the population of this country will be 45 years of age or older. One fact emerges from these figures and statements with crystal clarity. It is certain that the Public Health Officer and the clinician must adapt their services to the needs of the nation and population. The older our population becomes the more changes we shall have to fight disease—cancer, hypertension, arteriosclerosis, arthritis and diabetes.

No one will question the statement that public health and preventive medicine must meet the requirements of an aging population. But the burden of these diseases is so large and increasing so rapidly as the numbers of middle aged and elderly people increase that the vital liaison between the health officer and the practicing physician must be achieved if this part of the future health program of our country is to go forward. Everyone will surely agree that unanimity of opinion is not one of the characteristics of this world today. On one point, however, there is nearly unanimous agreement. Hardly any one will dissent from the statement that keeping people well and youthful is and should be a matter of time and place. A widespread concern with eliminating or alleviating suffering and a firm belief that suffering can be reduced by human efforts are certainly characteristic of the practice of medicine in America today.

While the rulers of humanity proceed with the carpentry of crucifixion, we find the men of medicine ever adding to the accumulation of three centuries of scientific knowledge and the corresponding growth of general ideas which alone can give reality to the concept of the dignity of man. Peace in our time depends more on the ministrations of the medical profession which is the profession of all professions and is universally understood and appreciated by all of mankind. So let us take time then and that type of courage of which Sir James Barry talked about in that still remembered rectoral address he delivered at St. Andrews. Courage, they say, is a lovely virtue. The rules that Doctor sent down to his children—unless a man has that virtue, insisted the great Dr. Van Johnson, he has no security for preserving any other.

I thank you very much.

Speaker: Thank you Dr. Smith. It is very fitting that we should have had a doctor today on our hundredth anniversary and I am sure that we all appreciate the scholarly and scientific analysis that was made of the new pattern that things are taking.

Now at this point I would like to outline just how we should conduct the meeting. I think that you all understand the delegates are to sit by councilor districts as I think you are already doing. In charge of each councilor group there should be the councilor, if possible, and he should be responsible for the delegates from his councilor district and be prepared to give a tabulation of their votes in case it is needed. That will make it unnecesary many times to take a ballot. The voting members should confine themselves to the central area where they are and the non-voting members should sit on the side as I think is the case now.

I wish to thank Dr. Ralph Duncan who generously and kindly has given me as much as possible of his experience as Speaker in previous years. He has been most helpful indeed.

Will the Chairman of the Committee on Credentials, Dr. Neilson, please make his report? Dr. Neilson.

A. W. Neilson, M.D., St. Louis: Mr. Speaker, the Committee on Credentials reports seventy-seven Delegates, nine Councilors and five Officers registered.

Speaker: The next order of business is the roll call. Mr. O'Brien, will you call the roll?

Mr. T. R. O'Brien read the roll of delegates and alternates, which showed a quorum present.

Speaker: I will ask for the report of the General Committee on Arrangements, Dr. Thompson.

J. W. Thompson, M.D., St. Louis: Mr. Speaker, members of the House of Delegates of the Missouri State Medical Association assembled to celebrate our 100th anniversary, it gives me great pleasure to report briefly that the committees which have arranged this centennial meeting have all been working diligently, and when Dr. Wallis Smith, our President, was installed a year ago, he exacted from each Councilor a pledge representing his constituents that we would lend our best efforts to making this particular centennial celebration one long to be remembered. We have labored long and diligently; the program committee headed by Dr. Arneson has, with the collaboration of the Smith, Kline and French Laboratories, arranged to have the colored television presented here in St. Louis for the first time; the program enumerates the various speeches of the outstanding part of our centennial celebration; the other arrangements for the ladies who have accompanied the gentlemen have—the Women's Auxiliary has done its part. We have appropriate entertainment and refreshments, both for the mind and for the gastrointestinal tract, and I feel sure that you will find time to visit a few of the spots in St. Louis, both of historic and current interest. I believe that the work of the various committees should be commended highly, and I wish to thank every one of them for a most splendid cooperation throughout the year, and I can report to Dr. Wallis Smith that I believe they all have done a splendid job. We will leave the verdict to you gentlemen to give after next Wednesday afternoon, and I believe it will be a unanimous "Good job well done." I hope so.

Speaker: Thank you Dr. Thompson, and next is the report of the Local Committee on Arrangements, Dr. Armand Fries, of St. Louis.

Armand Fries, M.D., St. Louis: I do not have much of a report to make. We welcome you in St. Louis to the 100th anniversary. I think that the main thing that you should not forget—you know all about the scientific programs—the entertainment on Tuesday night is a cabaret, and the ladies are invited. The affair starts at 8:30 p.m. and there will be dancing until 10:30, and then the entertainment starts at 10:30. I am sure you will enjoy it. Now, tomorrow night, of course, we want you to all be there. I wish to thank the committees in St. Louis who have worked for this program. I am sure that you enjoyed the *Globe-Democrat* this morn-

ing because it was quite outstanding. The newspaper was placed in every room in the hotel with the compliments of the Missouri State Medical Association. I think that this is going to be the best meeting for the 100 years we have been an association. Thank you.

SPEAKER: The next order of business is the reading of the minutes of the previous meeting. They were published in the July 1949 issue of THE JOURNAL. What is your pleasure?

Ralph E. Duncan, M.D., Kansas City, objected to the adoption of the minutes because of an omission of one paragraph in the report of the Committee on Public Policy and Public Relations.

R. Emmet Kane, M.D., St. Louis, objected to adoption of the minutes as published because a motion to "adopt" a new charter as introduced at the 1949 Session was not in order; that it should have been "received" and laid on the table for one year. He further objected because the minutes contain a report of the Reference Committee on Constitution and By-Laws reporting on a resolution on amending the charter of the Association and dealing with the charter, stating that this should not have gone to a reference committee since it was laid on the table for one year on the previous day.

This was discussed by Dr. Kane, Dr. Duncan, Herbert Mantz, M.D., Kansas City; Llewellyn Sale, M.D., St. Louis.

Dr. Duncan moved that the minutes of the previous meeting as printed in the July 1949 issue of THE JOURNAL be approved except for a paragraph in the report of the Committee on Public Policy and Public Relations. This was seconded by Dr. R. Lee Hoffman, Kansas City. Upon amendment, accepted by Dr. Duncan, and seconded, it was voted also to change in the minutes of the 1949 Session the motion concerning the report of the Standing Committee on Constitution and By-laws from "adopt" to "receive" (page 512, THE JOURNAL, July, 1949); and to expunge from the minutes that portion of the report of the Reference Committee on Constitution and By-laws dealing with the Charter and Articles of Agreement of the Association (page 530, THE JOURNAL, July, 1949).

Victor E. Scherman, M.D., St. Louis, Vice Speaker, presiding, the Speaker spoke as follows:

F. T. H'DOUBLER, M.D., Springfield: Mr. Vice Speaker, Members of the House of Delegates and Guests. This year is the hundredth year of our organization. As an organization we are one hundred years old. It is true that our present session on the other hand is not the 100th session because there have been lapses in our annual meetings due to wars. Nevertheless the fact stands that this year the Missouri State Medical Association is 100 years old. We feel justified in our historical setting and heritage and gratitude to the Missouri doctors that have preceded us and made possible the exceptional growth and development of our organization. However gratifying these considerations might be, we are faced with a rather ominous and slightly doubtful future because of the threat of compulsory health insurance or socialized medicine, or state medicine, under any other guise. Sometimes I believe medicine has been singled out because we doctors are so slow to act and so indifferent individually to general public relations that it might be an easy matter to herd us into the pens and then fasten the gates and have the job of socialized medicine over with. Then, too, if the central government would have control over individuals as regards hospitalization, medical and surgical care, dentistry, nursing care, drugs, appliances and such, the control in all other ways would be necessarily about complete and domination by the state would be correspondingly complete. It is not necessary to outline for a group of doctors the many evils and high costs of socialized medicine, more in particular the degradation of medical care.

We have begun to strike back, mostly by employing public relations experts but we are saying and doing little ourselves individually. This vast force that we can exert is a fine thing and should be stepped up. There are experts in the field of public relations whose services are indeed most beneficial. It is relatively easy and simple to write a check to cover one's share in the expenses incurred in our benefaction. That is not enough. We must always be active over the wide stretch of medical practice. We should discuss—not argue—the subject of state medicine with our patients and other friends. We should have, as has already been initiated, stickers to put on our letters and bills. In every office there should be selling factors and available informative pamphlets. If we all exert ourselves individually in that manner then the integrated effect will be enormous and together with our mass effort would pulverize our friends. If we do not carry on the fight individually and there are many who do not, we might lose. So while we regard our one hundred years of existence and our troubled future, let us say, without originality "hats off to the past and coats off to the future." It is my conviction and recommendation that a standing committee be appointed whose duty would be to continually goad our individual members into such action as I have outlined and to periodically furnish them with fresh advice and information that could be helpful in stimulating their individual efforts, in fighting socialized medicine.

Every doctor should not only be active himself on his own account but he should also spur and needle those of his colleagues when he knows they are shirking their duty. We can exert an enormous force if only each and every one would do a little each day.

Since our last Annual Session we have lost, through death, sixty-one members. These men have been humble and hard working citizens and have served their medical association well and society in general. Mr. Speaker, may we at this moment have a standing moment of silence as a tribute to the sixty-one who rest in peace?

It is recommended that a suitable resolution be made concerning these members and regretting their loss and that the resolution be spread upon the minutes of our organization.

I would like to name the Reference Committees. After a great deal of mature deliberation the following committees were determined upon:

Reference Committee on Constitution and By-Laws

W. L. Allee, Eldon, Chairman.
Paul Baldwin, Kennett.
A. R. McComas, Sturgeon.

Reference Committee on Resolutions

Durward G. Hall, Springfield, Chairman.
Ralph E. Duncan, Kansas City.
Jerome I. Simon, St. Louis.

Reference Committee on Miscellaneous Affairs

W. O. Finney, Chaffee, Chairman.
P. W. Jennings, Canton.
J. R. Meador, Clayton.

Reference Committee on Medical Education and Public Welfare

George A. Aiken, Marshall, Chairman.
D. E. Eggleston, Macon.
Joseph L. Fisher, St. Joseph.

Reference Committee on Reports of Officers

R. E. Breuer, Newburg, Chairman.
O. T. Blanke, Joplin.
Carl F. Vohs, St. Louis.

Reference Committee on Technical Exhibits

John J. Killion, Portageville, Chairman.
B. L. Murphy, Hannibal.
Victor B. Buhler, Kansas City.

Reference Committee on Scientific Exhibits

Kenneth Glover, Mount Vernon, Chairman.
Ben Bull, Ironton.
John Knight, Kansas City.

Reference Committee on Memorializing the 100th Anniversary

Robert Mueller, St. Louis, Chairman.
A. W. McAlester, Jr., M.D., Kansas City.
T. W. Cotton, Van Buren.

The report of the Secretary, H. E. Petersen, M.D., St. Joseph, follows:

REPORT OF THE SECRETARY

On December 31, 1949, the official membership of the Missouri State Medical Association was 3,497. There was a net gain of nineteen members from December 31, 1948.

Status of Membership

Number of members, January 1, 1949		3,478
New Members	198	
Reinstated	12	
Total		3,688
Dropped	31	
Deceased	89	
Transferred	71	
Total, January 1, 1950		3,497

Of this number 330 are Honor Members.

The Committee on Nominations which is appointed by the President from the House of Delegates must submit nominations for the following offices:

Three Vice Presidents to fill the vacancies created by the expiration of the terms of J. C. Creech, M.D., Troy; E. J. McIntire, M.D., Carthage, and H. M. Henrickson, M.D., Poplar Bluff.

Two Delegates and corresponding Alternates to the American Medical Association to fill the vacancies created by the expiration, December 31, 1950, of the terms of W. L. Allee, M.D., Eldon, Alternate, Paul Baldwin, M.D., Kennett; and Howard B. Goodrich, M.D., Hannibal, Alternate, H. L. Mantz, M.D., Kansas City.

The terms (two years) of the Councilors of the odd numbered districts expire this year: Donald M. Dowell, M.D., Chillicothe, First District; J. W. Thompson, M.D., St. Louis, Third District; J. Frank Jolley, M.D., Mexico, Fifth District; C. Edgar Virden, M.D., Kansas City, Seventh District; E. C. Bohrer, M.D., West Plains, Ninth District. Delegates from these districts shall meet on the morning of the third day and elect the Councilor for their district. The election must be certified to the House of Delegates on a prescribed form which will be furnished. Lists of delegates from the various districts will be available to the Councilors at the Registration Desk.

The session will convene for four days beginning Sunday, March 26, at 2:00 p.m., with a session of the House of Delegates, and closing Wednesday afternoon, March 29. A recessed session of the House of Delegates will be held Monday, March 27, at 4:00 p.m. and the final session of the House will convene at 1:30 p.m. on March 29. There will be a dinner for presidents and secretaries of county societies on Sunday evening, March 26. The Annual Banquet in Honor of Past Presidents will take place Monday evening, March 27, at 7:30 p.m. at Hotel Jefferson.

Copies of the Handbook of the Association, authorized by the House of Delegates, will be distributed to all who register for the session. Others will receive their copies later by mail. A History of the Missouri State Medical Association, 1850-1950, will be distributed to all who attend the Annual Banquet. The history was written by Robert E. Schlueter, M.D., St. Louis, Past President of the Association, one of the four delegates to the American Medical Association. The Association is indebted to Dr. Schlueter for his outstanding work in preparing the history.

I wish to take this opportunity to thank the members of the Handbook Committee, Ralph E. Duncan, M.D., Kansas City; Frank W. Hall, M.D., Cape Girardeau, and Robert W. Kennedy, M.D., Marshall, who gave invaluable assistance and guidance in the preparation of the Handbook. It is our belief that the members will find much valuable information about Missouri medicine as well as a complete roster of members in the Handbook. Last but not least, I wish to thank Miss Helen Penn, Assistant Editor, who did so much in assisting the Committee in the preparation of the Handbook, as well as the other loyal members of our Association office staff.

H. E. Petersen, Secretary.

The report of the Executive Secretary, Mr. T. R. O'Brien, follows:

REPORT OF THE EXECUTIVE SECRETAY

The year 1949 was a busy one for all concerned in the headquarters office of the Association. The Association has a most loyal and efficient group of employees who devote their time and energies to carrying out the programs of the House of Delegates, Officers, Council and Committees of the Association. I wish to thank all of them for their help to me.

The Annual Session program has been arranged with special care because of the Centennial. Outstanding physicians from all over the country will present latest methods of treatment in many branches of medicine. Color television, shown for the first time in St. Louis, will bring to the audience in Hotel Jefferson, actual operations and medical clinics while they are being performed in St. Louis City Hospital. The color television program is sponsored by the pharmaceutical house, Smith, Kline & French, of Philadelphia.

Scientific and technical exhibits will bring the latest advances in medical and surgical technics. All are urged to visit the technical exhibits during the intermission periods provided for that purpose. The funds received from the sale of exhibit space make it possible to provide better scientific programs for the benefit of members.

Elaboration on the activities of the various committees is not needed as they are outlined elsewhere in this report. Mr. Ray McIntyre or I have attended all meetings of committees and are keenly aware of the sacrifices of time and effort made by the many hard working physicians who are serving as committee members. It is indeed a stimulation to those of us who attempt to carry out these ideas and suggestions. It is the sincere hope of Mr. McIntyre and myself that we can be of the utmost help in the critical year of 1950.

T. R. O'Brien, Executive Secretary.

Mr. O'Brien: The following honor members are eligible for Associate Fellowship in the American Medical Association: Drs. Earl M. Shores and Charles H. Werner, St. Joseph; Sam E. Mitchell, Malden; Oliver S. Gilliland, W. F. Holbrook, Willis E. Keith, George Carlos Remley and H. F. Vanorden, Kansas City; Linn J. Schofield, Warrensburg; Eugene Barrymore, Bowling Green; Edwin Shouse, Lawson; John O'Connell, Overland; Adrien Bleyer, Harry S. Crossen, Martin F. Engman, Otto F. Flader, David L. Flanary, Maurice A. Frankenthal, William A. Fries, Evarts A. Graham, Willis Hall, William E. Holdenried, R. Emmet Kane, Edwin E. Kurtzeborn, William E. Leighton, Virgil Loeb, William H. Luedde, H. Edward Miller, Sherwood Moore, G. D. Royston, David A. Thompson and Samuel B. Westlake, St. Louis; George H. Koenig, St. Petersburg, Fla.; Ernest Sachs, New Haven, Conn.; C. T. Ryland, Lexington.

Upon motion, these members were approved for submission to the House of Delegates of the American Medical Association for Associate Fellowship.

Wallis Smith, M.D., Springfield, gave the President's Message as follows:

PRESIDENT'S MESSAGE

Mr. Speaker, Delegates to this 100th Anniversary Session of the Missouri State Medical Association:

It is an unusual distinction—and a solemn one—that has fallen to me this afternoon. In one regard, at least, I have served as a president unique in the annals of our association. No other retiring president of the Missouri State Medical Association has made his farewell address to the House of Delegates under circumstances like those of this afternoon. It is a remarkable—and sobering—reflection to realize that the expiration of my term coincides with the running out of the first century of the history of our association.

And what a century it has been! At its beginning, Missouri stood on the westernmost line of the states of our union. The first railroad to push west from the Mississippi extended but a few miles west of where we sit today. The great issue of the Civil War was yet to be decided. The whole pattern of modern America was, in many respects, still to be defined.

As doctors meeting here today at the end of this eventful—and indeed, fateful—century, I believe we may all have a deep and lively sense of pride in the performance of our profession here in Missouri in this past 100 years. The railroads have grown and pushed westward to the Pacific. Our civilization has changed almost beyond recognition. And yet in the midst of this fantastic century of progress, it would be hard to define any field of American endeavor in which progress has been more clear or more certain than in our profession.

I question if there is any group of men in any endeavor who may look back upon this last century with the same satisfaction that you and I may share today in reviewing the achievements of medicine. Within this century the span of human life has been increased by almost a generation—as generations were measured a century ago. The century has seen the growth of hospital facilities throughout our state. It has seen the development of magnificent teaching institutions of this city in which we meet today. It has seen the introduction of new surgical technics—the discovery and application of many new medical methods which have meant for all our people not only longer lives, but healthier lives—lives less affected by pain and disease—lives less marked by anxiety and tragedy.

And yet as we meet together here today, we cannot escape the awareness that progress even in medicine has brought us face to face with problems that require faith and energy and vision for their solution—the very qualities that animated the founders of this association 100 years ago.

It is the nature of the American people—and for this we may be thankful—that they are never satisfied with a status quo. Our frontier has pushed to the Pacific, and the influence of American civilization is felt around the world. The fact remains, however, that today, as in 1850, we stand at an American frontier.

In medicine we are particularly conscious of the challenge of this time. We are proud—and rightly proud—of the achievements of the past. No society in any nation at any time has moved more rapidly in alleviating pain and prolonging life for all its citizens. And yet we cannot be unaware of the vast amount that still remains to be done to make medicine, even here in Missouri, more perfectly the beneficial servant of all our people. At the conclusion of my term of office, I think it well to review briefly the effort your association is making to enable our profession to discharge this responsibility.

It would be unduly long to review in detail all the work of the past year. You have in your hand the printed reports of the committees of our association. The very bulk of these reports, the large numbers of committees, the wide range of the work that they have done speak for themselves, and I shall not endeavor to review them in detail. There are, however, a few outstanding points to which I think it well to direct your attention in reviewing the efforts of your society in the year now past.

I am particularly concerned that every delegate to this meeting and every member of the association should read with care the report of the Committee on Medical Economics. It is in this area that the problem of medicine in America today is, perhaps, most acute—and I am proud to report to you that it is precisely in this area that the progress of medicine in Missouri in the past year has been most marked.

In the state's two prepayment hospital care plans, we have seen extraordinary membership increases. Membership in the calendar year 1949 increased from 1,129,000 to 1,234,000, an increase of about 10 per cent. In the same period, enrollment in the state's two surgical and medical care plans increased from 360,000 to 456,000, an almost 30 per cent increase.

In other words, our profession is giving effective leadership in making medical and hospital care available to all our citizens on a prepayment budget basis. In the years to come I am confident that this rate of progress will be even more sharply increased as we intensify our efforts to demonstrate to all our fellow citizens the essential advantages of this voluntary American program for solving the problem of the cost of sickness on an insurance basis. The figures I have just mentioned relate only to doctor-sponsored plans. There are thousands and thousands of other Missourians covered by prepayment plans of private insurance companies.

In this connection, we may note with great satisfaction that we are finding a practical means for insuring the continuity of those voluntary arrangements in medicine which have characterized our profession in the past and which have been in such large part responsible for the rapid progress of medicine in America as contrasted with most other areas of the world.

All of us may take keen satisfaction in the work of fellow doctors who have performed so splendidly in providing this thoroughly American means of extending security in the area of medical economics and, at the same time, maintaining the freedom of our institutions. In our performance in Missouri, we see a specific and categorical demonstration that our people have no need to resort to compulsory programs imposed by a national government for the sound solution of the problem of medical costs.

The year saw further important progress in the work of our Committee on Rural Medical Service which seeks a practical solution to the problem of the shortage of doctors in some rural areas. The association office continued to maintain a careful and detailed file of locations in need of physicians, and the information of this file was made available to all doctors seeking locations. During the year 63 additional doctors were located in rural Missouri. This brings the total of newly located doctors outstate to the extraordinary figure of more than 350 since the war.

We have continued our efforts to interest senior medical students, residents and interns in the opportunities of rural practice, and very effective meetings were held in St. Louis and Kansas City for this purpose.

The association has continued to extend its advice and cooperation to all communities in need of improved hospital facilities. This question of facilities is of great importance in solving the problem of distribution of doctors. We must always bear in mind that doctors graduating today have been trained to the highest standards of scientific medicine, and they need facilities to practice medicine of this calibre.

The association has continued its efforts to bring home to the people of Missouri, the legislature and the authorities of the state university the fact that we need a full four-year medical school. During the year the association published a detailed study on this subject advocating what it believed to be the most economical and effective location for the proposed school. We stand by the recommendation that emerged from that study. We

are, however, on record as advocating this needed new school wherever it may be located.

Before concluding this inadequate summary of the year's activity, I must mention our intensified efforts to make the association the effective means of bringing to all Missouri doctors up-to-date and useful knowledge of progress and developments in scientific medicine. Our Committee on Postgraduate Course has sponsored many scientific meetings throughout the state. The calibre of these meetings has been first-rate. The meeting we are attending here in St. Louis will, I believe, prove to be a landmark in its usefulness. I call attention particularly to the fine program of scientific speakers and exhibits and the first use of colored television in our state.

It would be improper to conclude this talk without referring to the extraordinarily valuable work of the officers, councilors, committee chairmen and staff of your association. Most of them are men with whom I have worked for years, and our work together has meant very much to me. I am confident that all of you are aware how much their service has meant as well to Missouri medicine.

I have one more word to say in conclusion. We stand today at the end of one century and at the start of another. The progress of the past 100 years has been beyond measuring. Those of us whose service has been primarily in the century now past, I am sure, all join in expressing confidence in the younger generation of doctors now growing up in Missouri. To them we pass on a great tradition and a great responsibility. In the years to come the profession, I am confident, will have reason to be proud of the way this responsibility is discharged—and the way this high tradition of public service is maintained.

Thank you.

W. A. Bloom, M.D., Fayette, gave the Recommendations of the President-Elect as follows:

RECOMMENDATIONS OF THE PRESIDENT-ELECT

Mr. Speaker, Members of the House of Delegates:

It is with a very conscious sense of responsibility that I speak to you briefly this afternoon of the elements of the problems and the program that will concern our association in the coming year. I am keenly aware of the honor the association has bestowed upon me. I shall do my best in the year ahead.

Of the problems that will concern us, some are national in scope; others affect the people of the whole State of Missouri. Both sets of problems are of the gravest importance.

There is no need for me to speak in detail of the national campaign in which the American Medical Association is engaged to preserve the freedom of our profession—and, in so doing, contribute to the preservation of all American freedom. I recently attended a conference in Chicago at which the progress and the planning of this campaign were under consideration. I feel I can report to you that—within the limits of the humanly possible—organized medicine in America is doing a thorough job to bring home to all our people the great importance of this issue.

In the year before us, the American people will have an opportunity to express themselves on this question —among others—at the polls. In the campaigning and electioneering, organized medicine has no proper place. Every individual doctor, however—whatever his party affiliation—has the right as a citizen and the responsibility to make his influence felt for the selection of candidates in both parties whose views on this issue of government compulsion in health matters are on the side of freedom.

This is an issue above party. It has nothing whatever to do with partisan labels. There are men in both our major political parties devoted to the traditional institutions of freedom of our country. Such men deserve the support of individual members of our profession. I am confident they will not find the doctors wanting at election time. Each of us has a job to do to join with others in whatever form of individual activity we may find appropriate to make our influence felt now that the chips are down.

So much for the national issue. Let us turn now to the responsibilities and opportunities our organization faces in the coming year in our own home state of Missouri. I cannot refrain, by way of preface, from extending at this time my congratulations to Dr. Wallis Smith of Springfield under whose leadership in the past year our association continued steadfastly along the road toward its goal of ever greater service to the people of our state.

In considering our program for the year ahead, I feel we may have no better starting point than the program already formulated a year or two ago. It is a program in six points—all of them important to Missouri, and all of them worth repeating briefly now.

Point 1. Point one stresses the need for continued cooperation of our profession with many counties and communities of the state for the improvement of hospital and diagnostic facilities. Progress in this area has been great. We have much that remains to be done.

Point 2. We have committeed ourselves to sponsorship of prepaid hospital and medical and surgical care programs. These programs must be carried forward at an ever increased rate of progress for the benefit of all our citizens.

Point 3. Our association has urged in the past an extension of the programs of the State Division of Public Health in the interest of preventive medicine, public health education, maternal and child care programs. Today we must dedicate ourselves anew to the furtherance of these essential activities.

Point 4. There remains urgent need for improvement in the facilities and plants of our state hospitals and for increasing the staffs of professional personnel employed in these institutions. The efforts of our association to secure better conditions here must be redoubled.

Point 5. The doctors of Missouri have long been aware of a problem growing out of the maldistribution of physicians throughout the state. In the years since the war, our association has been instrumental in bringing about an extraordinary improvement in this situation. More than 351 new doctors have been located in rural areas since the first of January, 1946. We are continuing our efforts to see to it that citizens in all parts of the state have physicians available for their proper care.

Point 6. There is need for scholarships and financial assistance to make possible the medical education of a larger number of Missouri young men and women. We also greatly require a four-year state university school of medicine. In the last year, the association has continued to press for this. In the year ahead, we must carry forward our efforts in this direction.

That six-point program enunciated by the Council of our association in November, 1948, still stands as a challenge to us today. Much progress has been made. Much remains, however, to be done. I should like to adopt this program as the platform of the administration I shall have the honor to head in the coming year.

I think it valuable to divide the elements of our program into two distinct groups. Both of them are essentially important. There is no hard and fast dividing line between them, but such a division may be helpful in clarifying our thinking of what remains to be done.

The first principal point I want to make is that we must lift our sights as an association. I should like to feel that we are not today starting just another year, but a period of time of five or ten years within which period we plot out and execute a program leading to certain definite goals. I say we must raise our sights. We must think of long term objectives, and we must think of such objectives—as it seems to me—under two headings.

The first of these headings relates to the practice of

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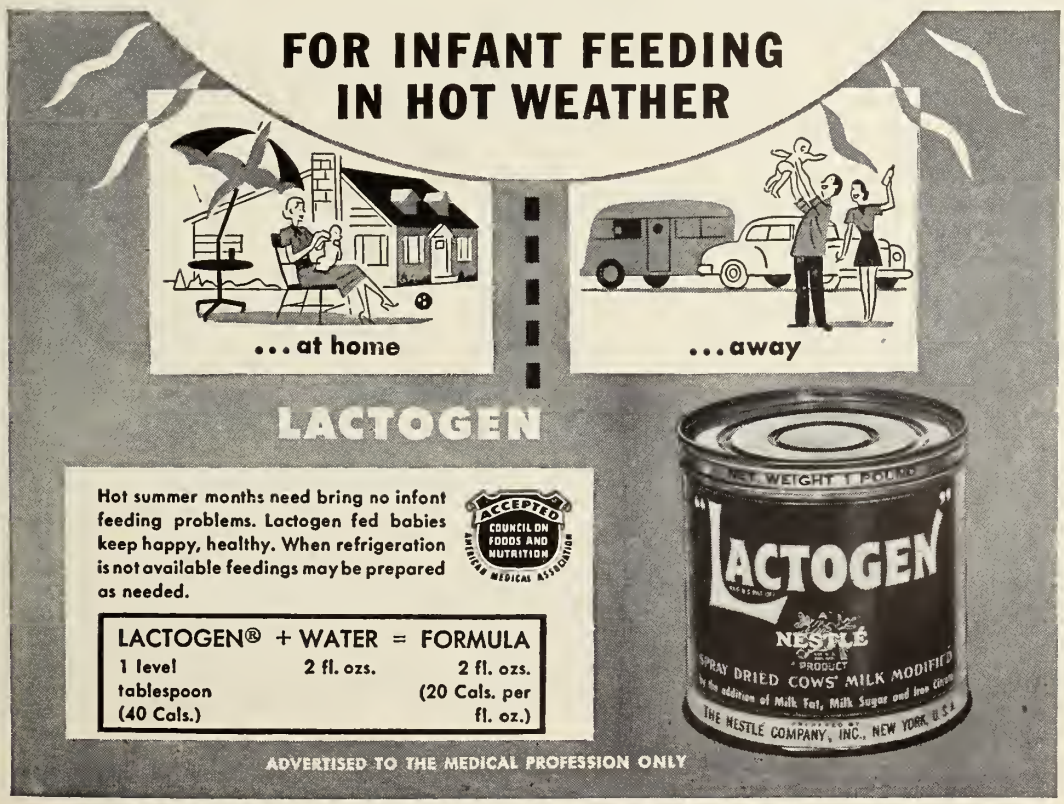
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medicine and to the standard of scientific medical excellence that we are providing for the people of Missouri. The elements of our program that relate to this broad subdivision of our effort are as follows. I believe they are worth repeating.

1. A four-year medical school of the University of Missouri. Our association in the past year has spent considerable time and effort—and not an insignificant amount of money—to present to the people of Missouri and to the authorities of the University the views of our profession in relation to this new school. We have emphatically indicated the reasons why we feel that the school could be most economically and effectively operated in a particular sort of location.

At this time, however, I wish emphatically to restate our view that Missouri needs this school—no matter where it may be located.

We also need, in this connection, a system of student selections, supplemented with scholarships, which will foster the training of physicians fitted by aptitude and interest for practice in rural areas.

2. This brings us to the next part of our broad responsibility to provide the best medical service for all Missourians. We must redouble our efforts, which have been so phenomenally successful since the war, to see to it that no significant area of Missouri is lacking the care of a qualified physician. I believe our experience in th past has shown that our attack on this problem is one of the soundest devised by any medical society in the country. We know how to go about the job. We have had great success to date. Our efforts should be intensified along the same lines.

3. Our next logical concern in this connection is to carry forward our splendid program of postgraduate education by means of regional meetings at which eminently qualified scientific speakers in our own ranks keep all Missouri practitioners fully abreast of new developments in scientific medicine.

Here, I should like to say a word about the progress made in the past year by our JOURNAL. I wish to pledge the efforts of my administration to continue this progress to make our publication one of the outstanding medical journals of the world.

4. The provision of more adequate public health and preventive medical services throughout the state is imperative. Here, our association must continue to influence the thinking of our state government in a constructive way. In this connection, increases in the appropriations of the State Division of Public Health are important.

5. A basic science law and improvement in the statutes relating to the practice of medicine and surgery and to the authority and duties of the State Board of Medical Examiners are greatly to be desired.

6. Finally, as we consider the broad responsibility of our association for improvement in the standards of medical care in Missouri, we must emphasize the continuing need for community initiative in the construction of hospitals and diagnostic facilities. Here, the advice and aid of our association have been and can be invaluable.

All that I have said in the last few minutes belongs to the essential rock-bottom service program of our association. Unless we perform creditably in this area of service, nothing we say or profess in public can have much influence. The fact remains, however, that there is another part of our association activity—and a very important part—which relates to the improvement of public understanding of the medical profession and of the values of our existing system of freedom for doctor and patient.

In our program of public relations—as contrasted with our activities in the medical field proper—I feel that coming years should record important progress.

An essential part of our public relations activity must be an intensified effort to acquaint all Missourians with the benefits of prepay medical, surgical and hospital care plans. There is no need for me to dwell on this. You are all aware of the progress our plans have made in the past. In the immediate future, we must redouble our efforts to give to all our citizens this insurance protection. On our success in this may depend a large part of the public response to the temptation held out by advocates of Federal compulsion.

In general, our public relations effort in Missouri stands today at the beginning of a great opportunity. Under Dr. Armand Fries, we have developed the outline of a new grass-roots program. On paper, it looks first-rate. The years ahead will require us to put such a plan into full operation to provide an effective channel by which we may reach into every town and county of Missouri with the message of medicine in the public interest.

Such, gentlemen, in brief and necessarily general terms, is the program I recommend to you for the years ahead. It is a program that asks much of every one of us. It is a program that will take not merely money, but effort on the part of individual doctors in every community in our state. I commend to your serious consideration this afternoon the specific proposals which may be brought forward as resolutions in relation to the objectives of this program. I urge you to consider them critically, but also imaginatively and with an eye of faith. On the wisdom of the decisions you make this year and next year may depend the future of our profession in Missouri and in the nation.

There is, however, a factor even more important. This House of Delegates at this time is a semi-public legislative body. It is concerned with matters vitally affecting the public interest. The public has a right to expect from it and from all our association a high level of statesmanship.

I am confident that with the start of this new year—and the start, too, of this new century—that our association, the doctors of Missouri, will not destroy the high hopes of our citizens. I am confident that our association will be true to the highest challenge of American citizenship at this time and to the highest demands of our exacting profession.

Thank you.

SPEAKER: We have with us the Director of the Washington Office of the American Medical Association, Dr. Joseph S. Lawrence. Will you please address the House, Dr. Lawrence?

JOSEPH S. LAWRENCE, M.D., Washington, D. C.: Mr. Speaker, Mr. President, Officers, Members of the House of Delegates of the Missouri State Medical Association.

I thoroughly appreciate this honor and am happy to extend to you the felicitation of the American Medical Association on this fine occasion.

I want also to compliment you on the several addresses that you have just listened to, the prospects of the future, the accomplishments you had in the first hundred years. I was thinking, as I was looking over your program this afternoon, what wonderful things have been accomplished in this first hundred years. The first objective probably was to control quackery and maybe the second was to extend education and the third was to secure the proper form of life insurance. Those are the objectives of most of the associations at that time. You have accomplished that with great success and great satisfaction to yourselves for having done so.

And now I have been particularly encouraged to hear the outline that Dr. Smith and Dr. Bloom gave you this afternoon of what they are going to do in the next hundred years. I want to join with what Dr. Bloom has said in endorsing this part of it. Just what is your objective for the next hundred years? You know that is an exceedingly important decision to reach—an objective to make. It is all very good to go on from year

to year improving on the best but what is it that you are seeking for? Congressmen ask that problem frequently. What is it that you intend to do? When we are criticising legislation, what is it that you want? And too many times all we want is just to clear our skirts of what is entangling them at the time, but that is not sufficient. We want more, and I am delighted to hear the way you have outlined that wanting more.

I have one or two points more that I would like to add. They are a sort of anticlimax but I do want to bring them in as they seem to mean a lot as I look at it. As an objective, be able to tell others what your objective is and to tell your Congressman especially. Do not let that objective that we have be controlled or be stimulated merely by money. It seems at the present time that bills come to Washington, people come to Washington looking for appropriations and larger appropriations. They are necessary but they are not going to accomplish the end, I am satisfied. One procedure which troubles me considerably is just now being advanced in certain areas in the country and this is this universal screening, as screening for tuberculosis. Of course this had a splendid objective but when you come to universal screening and pick people off the streets, give them the test in the laboratory without the history, without the contact between the doctor and the patient, although the family doctors are about to help do it, I question whether that is going to bring the results that we ultimately hope to have. This impersonal matter, two officers here discouraged by implication, if no other way—this impersonal treatment of doctor and patient is going to be severely criticized as we go on, especially in some areas. I do not know how many of you have seen the article that Mr. Deutsch has in the *Woman's Home Companion* of April but it is worth looking at. Mr. Deutsch and I do not agree in very many cases and again his implications—why I hate to think of them. I cannot go along with him. He may not be wrong but certainly we want to challenge him on that basis.

I simply add this one thing—this closer relationship with your patient. Probably the new organization, in their association of general practitioners will further that, but it will depend primarily on its success on an organization such as this and, with the splendid start that you have, I know that you are going to succeed.

I thank you.

The report of the Treasurer, C. E. Hyndman, M.D., St. Louis, follows:

REPORT OF THE TREASURER

C. E. Hyndman, M.D., St. Louis: The report of the Treasurer is covered in the financial statement of the Association for 1949 which appeared in the March issue of The Journal. Since Delegates have had that issue of The Journal, the report is not repeated in the "Reports of Officers and Committees" but Delegates are referred to The Journal.

Upon motion and second, the reports of the Officers were referred to the Reference Committee on Reports of Officers.

The report of the Committee on Scientific Work, A. N. Arneson, M.D., St. Louis, Chairman, follows:

REPORT OF THE COMMITTEE ON SCIENTIFIC WORK

The Committee believes that the program for the Annual Session is a practical one and will prove to be valuable to the members. The complete program appears in the March issue of The Journal. An outstanding feature will be the showing of color television for the first time at an Annual Session. Surgical procedures and medical clinics will be shown on television screens at Hotel Jefferson while being performed at the St. Louis City Hospital.

A. N. Arneson, Chairman,
H. E. Petersen,
Victor B. Buhler.

A. N. Arneson, M.D., St. Louis: Mr. Speaker, Members of the House of Delegates. It is my pleasure to report to you that the task assigned the Committee on Scientific Work is in good order. The credit for that accomplishment goes to a great many individuals. At the outset, through the cooperation with the President and the Executive Secretary and his staff and the Committee on Postgraduate Course, certain predetermined plans were set up to which we adhered rather strictly. It may be that there are some who felt offended that they did not have places on the program and had good material to present, but we did adhere to the predetermined plan in order to consumate what we hope will prove to be a satisfactory program for you on this 100th anniversary.

Just one word about color television. One would think it would be possible to iron out all the kinks and have that ready to go. It was Thursday evening when Mr. Lang and Mr. Roll arrived here to begin work. The Telephone Company had then spent already four and one-half days laying between the Jefferson Hotel and the Telephone Building a special cable. To everyone's dismay, the cable wasn't one suited to this particular task. We did find out, however, that in Texas there was some equipment belonging to the Telephone Company that could remedy the ill effects of the cable not too well suited, so the Telephone Company dispatched a plane to Texas and they returned with it. Then it seemed like things might be in pretty good order and they set to work at the City Hospital only to find out that the City Hospital generates its own electricity. That would not work because things that at the City Hospital might be blue would appear green, yellow or some other color. Finally, about midnight on Friday, after the Union Electric offices were completely closed, they did succeed in contacting someone and they cooperated magnificently. They sent some engineers out and they worked through the middle of the night and with flashlights they searched around the City Hospital to find power outlets. The engineers then set to work to lay a new power line to the City Hospital but the City Hospital had to obtain a license to lay such a line, so finally we got the license from the city to lay the special power line to the City Hospital. So that looked like it would be all right, except they had to cut a hole in the City Hospital wall to get the power line in. But finally they succeeded in doing that and tonight there was a picture on the screen downstairs and I hope that it runs through the rest of the meeting. Thank you.

The report of the Committee on Postgraduate Course, M. Pinson Neal, M.D., Columbia, Chairman, follows:

REPORT OF THE COMMITTEE ON POSTGRADUATE COURSE

In filing this report the members of the Committee desire to make clearly understood that to Mr. Raymond McIntyre, Field Secretary, major credit is due for planning the recorded meetings, obtaining speakers and carrying out the programs. His interest, personality and enthusiasm made these various programs what they were.

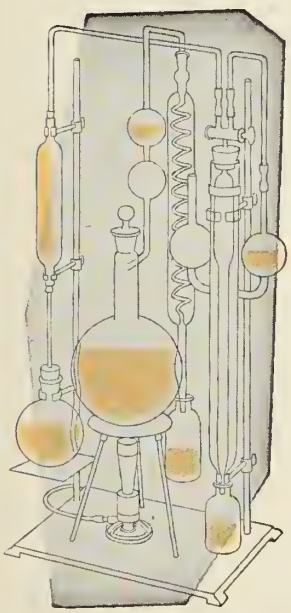
When this Committee was appointed, high hopes were entertained for activity in programs for physicians and for the lay public. The by-laws of the Association under Chapter VII, Committees, Section 8, state: "The Committee on Postgraduate Course shall provide speakers for district society meetings when requested by the Councilor." The Committee has no other authority.

A year ago there was a proposal that this Committee

AUREO-MYCIN

in Surgical and Other Infections

AUREOMYCIN



Surgeons are now generally coming to the conclusion that the use of aureomycin preoperatively and postoperatively in all cases is worthwhile insurance against infection. This is particularly true in infections involving the peritoneum.

Aureomycin has also been found effective for the control of the following infections: African tick-bite fever, acute amebiasis, bacterial and virus-like infections of the eye, bacteroides septicemia, boutonneuse fever, acute brucellosis, Gram-positive infections (including those caused by streptococci, staphylococci, and pneumococci), Gram-negative infections (including those caused by the coli-aerogenes group), granuloma inguinale, *H. influenzae* infections, lymphogranuloma venereum, primary atypical pneumonia, psittacosis (parrot fever), Q fever, rickettsialpox, Rocky Mountain spotted fever, subacute bacterial endocarditis resistant to penicillin, tularemia and typhus.

Capsules: Bottles of 25, 50 mg. each capsule.
Bottles of 16, 250 mg. each capsule.

Ophthalmic: Vials of 25 mg. with dropper; solution prepared by adding 5 cc. of distilled water.

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be merged with the Committee on Scientific Work. That was not accomplished. It is felt that the House of Delegates should courageously approach the problem of merging these two committees and of setting up a pooled policy and responsibility of the thus combined committees relative to medical and the lay public education. The members of the Missouri State Medical Association have a great resource to work with and for their own members and with lay peoples for a better understanding of mutual problems and acceptances. It is within its province to help the public help itself in all matters pertaining to health.

Medical meetings are on the increase. There has been a steady rise in requests for speakers to appear on scientific programs all over the state. These requests have been filled when at all possible.

Joint medical society dinner meetings seem to be generating an increased interest in most sections of the state. These meetings may encompass any number of component societies which are within reasonable travel proximity and in many instances have taken in entire Councilor Districts. In many cases these meetings begin with a social hour, a dinner and then the program embracing one or two scientific papers or one scientific presentation in conjunction with one on medical economics.

Joint evening dinner meetings of contiguous societies, since the last Annual Session, have been held as follows: Three such meetings of physicians from ten counties have been held in Chillicothe, one in Hannibal of societies in the Second District, three in Wentzville of five counties, one in Mexico of societies of the Fifth District, one in Nevada, one in Butler and one in Marshall all taking in the societies of the Sixth District, one in Joplin and one in Lamar encompassing the Eighth District, and one in Lebanon of societies of the Ninth District and one in Kennett, Sikeston and Farmington each taking in all societies in the Tenth District. Total attendance at these meetings was 710 physicians. The Postgraduate Committee was pleased to assist in arranging and furnishing speakers for these programs.

Since the 1949 Annual Session, afternoon and evening Councilor District meetings have been held in Districts 2 and 9 at which 130 physicians were in attendance.

Beginning October 12, 1949, and for the next five consecutive Wednesday nights at Fayette, the Missouri Academy of General Practice presented a postgraduate program consisting of two scientific presentations each night to which all state Medical Association members within a radius of seventy-five miles were invited. Many physicians in Central Missouri attended these lectures. Auxiliary members of this Committee aided in the promotion of this series of meetings.

On November 3 the Clay County Medical Society sponsored its Second Annual Clinical Conference in Excelsior Springs. Approximately 125 physicians from Western Missouri and Eastern Kansas attended this interesting and informative meeting including luncheon, afternoon and evening sessions.

The St. Joseph Clinical Society presented an attractive program at its meeting in St. Joseph the afternoon and evening of November 10. Physicians from Northwestern Missouri and Northeastern Kansas made up the bulk of the attendance.

This Committee had occasion to furnish a large number of speakers for component societies during the year and takes this opportunity of offering its services in making available continuing effective postgraduate work throughout the state.

Members of this Committee met with and were pleased to assist the Committee on Scientific Work in arranging and developing the scientific program for this, the Centennial Session, of the Missouri State Medical Association.

To all of those speakers who gave of their time and energy in presenting postgraduate programs and to those others who helped with program arrangements—our thanks are proffered.

M. Pinson Neal, Chairman,
Carl R. Ferris,
R. O. Muether,
Edward Massie,
Guy D. Callaway,
Kenneth Glover,
D. L. Sexton,
W. W. Tillman,
Paul O. Hagemann.

The report of the Committee on Publication, R. O. Muether, M.D., St. Louis, Chairman, follows:

REPORT OF THE COMMITTEE ON PUBLICATION

January 1, 1949, to January 1, 1950

The 46th volume of The Journal was completed with the December issue. During 1949 there were published in The Journal forty-nine original articles, sixteen case reports, four special articles, thirty-two editorials, one hundred forty-two news items, thirty-two miscellaneous articles, forty-five society proceedings, twenty organization activities, twelve President's Pages, twelve reports by the Field Secretary, seventy-nine obituaries, two reports from the Woman's Auxiliary and eighty-one book reviews. There were 468 pages of reading material and 420 pages of advertising and fifteen inserts.

Advertising in The Journal from January 1, 1949, to January 1, 1950, earned $19,244.66. Subscriptions of nonmembers amounted to $159.80, making $19,404.46 earned by The Journal. The cost of production of The Journal (printing and illustrations) was $15,646.68.

Beginning with the 47th volume, January 1950, the plan of The Journal was changed to some extent. The format has been changed and the scientific material has been placed in sections on Scientific Articles, Postgraduate Reviews, Clinical Pathologic Conferences and Case Reports. An Editorial Board has been appointed whose duties are to assist in securing good scientific material and to review material that is submitted. The Journal is the publication of the members of the Association and the Editor, the Committee on Publication and the Editorial Board are attempting to give the best possible publication to the members and to obtain from the members their best material.

R. O. Muether, Chairman,
V. T. Williams,
H. E. Petersen,
M. D. Overholser,
Paul O. Hagemann.

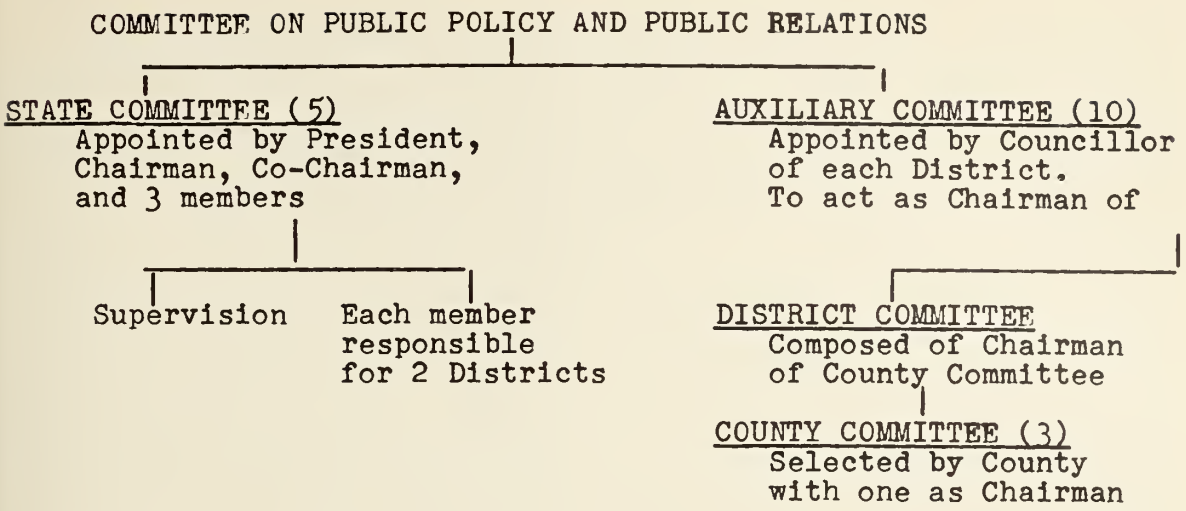
The report of the Committee on Public Policy and Public Relations, Armand D. Fries, M.D., St. Louis, Chairman, follows:

REPORT OF THE COMMITTEE ON PUBLIC POLICY AND PUBLIC RELATIONS

On April 28, 1949, letters were sent to all county secretaries and presidents enclosing a blueprint of suggestions for activities of county medical societies regarding compulsory health insurance. Enclosed was a pamphlet with various arguments against compulsory health insurance. It was also suggested that an attempt be made to get resolutions from clubs, church groups and such.

On May 5, 1949, another letter was sent reaffirming adoption of resolutions as in the previous letter. A list of national and state groups adopting resolutions was enclosed. A statement by Dr. George Lull and a pamphlet from the A.M.A. entitled "American Medicine Replies to President Truman" also was enclosed.

On June 19, 1949, a meeting of the Public Policy and Public Relations Committee was held at the Sheraton Hotel in St. Louis. The plan of the A.M.A. through the public relations firm of Whitaker and Baxter was out-



lined by the Chairman. The previous two letters were discussed by the Committee in general. This included discussion of the blueprint and especially the resolutions to be obtained by the Committee. The Woman's Auxiliary was commended for its splendid cooperation in its distribution of pamphlets. The public relations efforts of the St. Louis Medical Society, especially the program of "Health and Happiness," were outlined.

The health column "Medical Sidelights" which has been furnished to weekly newspapers by the Association for the last eighteen months was considered and on motion it was voted to discontinue the column.

Mr. O'Brien outlined the efforts being made to secure resolutions against compulsory health insurance and presented a list of organizations which have adopted resolutions. He stated that efforts are continuing in that direction.

Mr. O'Brien also called attention to a strip film which is being prepared by Mr. Lemoine Skinner. The film with script will be available to members of the Association through this Committee when it is completed. It is hoped that Whitaker and Baxter will pay for the film and make it available nationwide.

In order to coordinate the efforts of the Association and its county societies it was agreed that each county society be asked to appoint a public relations chairman to act as the representative of the society in public relations matters and also to serve as a liaison between the county society and the public relations committee. It was suggested also that an outline based on the Whitaker and Baxter blueprint be prepared for the use of the county societies and that after the summer months a meeting of the Committee with the public relations chairman of the county societies be held. At the meeting a panel discussion be arranged to present all available information to the county chairmen.

Formation of a citizens group of persons from all walks of life was discussed. It was pointed out that Whitaker and Baxter has such a program in mind at present. The group would need careful guiding and should be used for education and information to the public.

On September 30, 1949, letters were sent to all presidents and secretaries of the county medical societies and to the public policy and public relations committee members. The format of the new Public Policy and Public Relations Committee was explained and a diagram sent. Also changes in by-laws which were anticipated were sent. The following is the outline of the new Committee:

1. County Medical Society Public Policy and Public Relations Committee: Each County Medical Society to have a committee of 3 persons with one designated as chairman.

2. Councilor District Public Policy and Public Relations Committee: Composed of chairman of County Medical Society committee.

3. Auxiliary Public Policy and Public Relations Committee: Councilor of each district to appoint one member of his district from among the chairmen as outlined in 2. This member to be chairman of Councilor District Public Policy and Public Relations Committee.

4. State Public Policy and Public Relations Committee: Composed of five members appointed by the President. This Committee to have direct supervision of the overall program. In addition, each member (5) will be responsible for two Councilor Districts (10).

This outline is for District No. 1. Each district has a different number of committeemen due to a difference in the number of counties. The county societies were urged to send in the names of their committeemen.

On November 5, 1949, the Chairman went to Chicago for the second Annual Public Relations Conference. At this meeting the Grievance Committee seemed to be the most outstanding individual effort and the Chairman suggests strongly that the State of Missouri adopt it because of its public relations value. On November 22, 1949, personal letters were sent to committee members relative to the Chicago conference.

On January 22, 1950, a meeting of the Public Policy and Public Relations Committee was held at Jefferson City. The Chairman explained the set-up and purpose of the county and district Auxiliary Public Policy Committees and expressed disappointment that more had not attended the meeting. He reported on the Public Relations meeting in Chicago on November 4 and 5, discussing (1) Grievance committees; (2) chairmen of Auxiliary Public Relations Committee receiving all public relations pamphlets issued by the American Medical Association; (3) letter from the American Medical Association regarding local resolutions against compulsory health insurance which suggested that resolutions sent by local groups be more concise and not be so specific in details.

Upon motion, the suggestion of Whitaker and Baxter that Missouri statewide groups which have passed resolutions be called upon by a representative from the state office as well as someone from the office of Whitaker and Baxter was approved.

Mr. Skinner discussed the strip film opposing compulsory health insurance on which he has been working. He explained that there was a possibility that Whitaker and Baxter may take over the production of the project but that it was felt that final production

should not be made until possible proposed legislation was a little clearer.

Mr. Skinner explained that the strip film was an illustration of the type of thing that the committee should make available. He said that he felt news releases should go to newspapers through the county public relations representatives. Mr. Skinner also proposed that five minute radio presentations should be made available, either as records or as script for reading.

A discussion on obtaining material that is usable readily followed, participated in by Drs. Neilson, Crouch, Allee, Fries and Mr. Skinner.

It was suggested that the chairman send bulletins on available information to the committee at intervals, the committee to act as a channelling committee.

S.B. 1453, S.B. 1411 and H.R. 6000 were discussed briefly. Upon motion, it was agreed that the committee recommend to the Council that the recommendations of the American Medical Association concerning this legislation be followed.

On February 12, 1950, a meeting was called by Whitaker and Baxter in Chicago at the Drake Hotel. This meeting was attended by Drs. Wallis Smith, William Bloom, J. W. Thompson, John Growdon, Carl Ferris, Carl Vohs, Armand D. Fries, and Messrs. Tom O'Brien and Bartleson. The gist of the meeting was reiteration of the policies of Whitaker and Baxter, results of the 1949 campaign and the formula for efforts for 1950. It is the opinion of Whitaker and Baxter that 1950 is the year in which physicians are either going to win or lose the battle against compulsory health insurance and socialism. Many other details were discussed at this meeting such as the $25.00 dues.

It is the Committee's idea that the enlarged committee should be completed at once so that direct action can be taken at the quickest possible moment.

Efforts must be continued in obtaining resolutions against compulsion.

The Woman's Auxiliary must be utilized to the highest degree.

Well versed speakers, both lay and medical for any emergency must be available.

Armand D. Fries, Chairman,
J. W. Allee,
F. R. Crouch,
Howard B. Goodrich,
John Growdon,
C. W. Schumacher.

The report of the Committee on Defense, C. E. Hyndman, M.D., St. Louis, Chairman, follows:

REPORT OF THE COMMITTEE ON DEFENSE

March 1, 1949, to March 1, 1950
Status of Cases

Cases pending March 1, 1949	3
New cases during the year	2
Cases settled during the year	1
Cases pending March 1, 1950	4

The one case that was settled was settled out of court.

C. E. Hyndman, Chairman,
Roland S. Kieffer,
L. F. Heimburger,
O. B. Zeinert,
L. P. Forgrave.

The report of the Committee on Medical Education and Hospitals, John S. Knight, M.D., Kansas City, follows:

REPORT OF THE COMMITTEE ON MEDICAL EDUCATION AND HOSPITALS

The Committee on Medical Education and Hospitals has had no formal meeting during the last year. The particular duties of the Committee have been to observe and influence, wherever possible, efforts toward establishing a four-year School of Medicine as part of the program of the University of Missouri. In the General Assembly of the State of Missouri, session of 1949, there was introduced a resolution for the appointment of a commission to proceed with an investigation and render an opinion as to where the school should be located. This failed to be adopted by the Senate.

The Board of Curators at a meeting in May in St. Louis received from the State Association information compiled in booklet form comprising a survey of educational facilities for medical education to substantiate the action adopted by the House of Delegates of the Missouri State Medical Association that the School of Medicine of the University of Missouri should be expanded to a four-year school located in Kansas City.

Following the receipt of the evidence by the Board of Curators, a special committee was appointed composed of three members of the Board of Curators, and the committee was instructed to employ qualified authorities to make an investigation and submit a report of their recommendations relative to the location of a four-year School of Medicine for the University of Missouri. The report of the special committee has not been completed.

Other medical education has been carried on ably under the work of the Rural Medical Service Committee and the Postgraduate Course Committee who have collaborated together under the direction of the Field Secretary, Mr. Raymond McIntyre, in presenting programs at the meetings of the county societies and councilor districts.

The Committee has been apprised of the proposals for the construction of hospitals under the Hospital Survey and Construction Act. The Missouri State Medical Association Committee on Rural Medical Service has devoted considerable time to it and has assisted, wherever possible, local committees in achieving programs that would create eligibility for the community to participate in the available funds in the construction of needed hospital facilities.

John S. Knight, Chairman,
F. T. H'Doubler,
O. J. Gibson,
D. M. Dowell,
Oliver Abel.

John S. Knight, M.D., Kansas City: Supplementing the printed report, a survey to be made by the Board of Curators of the University of Missouri by Dr. Diehl, Dean of the School of Medicine of the University of Minnesota, was delayed because of work Dr. Diehl did for the American Medical Association in Europe. Dr. Diehl has completed that work and it is believed that the survey may be completed within the next few months.

The report of the Committee on Cancer, E. C. Ernst, M.D., St. Louis, follows:

REPORT OF THE COMMITTEE ON CANCER

The cancer service program throughout Missouri by the American Cancer Society in cooperation with the Cancer Committee of the Missouri State Medical Association, in the interest of the indigent cancer patient, has been more widely distributed and improved during the last year, but many of the planned more extensive state-wide cancer surveys and educational projects were of necessity curtailed due to a lack of available funds.

The budget prospects for the coming year, however, appear brighter and more favorable if future increased cooperation with our State Health Department and the use of their ear-marked United States Public Health funds as "Cancer Grants" meet with the approval of the local medical profession and our State Medical Association. The possible use of a Mobile Cancer Unit

The Protein-Rich Breakfast and Morning Stamina

Extensive studies* by the Bureau of Human Nutrition have established that breakfasts rich in protein and supplying 500 to 700 calories, effectively promote a sense of well-being, ward off fatigue, and sustain blood sugar levels at normal values for the entire morning postbreakfast period.

These physiologic advantages are related mainly to the protein content rather than to the caloric content of the breakfast. In fact, when isocaloric breakfasts were compared, those with the higher amounts of protein led to the greatest beneficial effects. Breakfasts providing the lower quantities of protein (7 Gm., 9 Gm., 16 Gm., and 17 Gm. respectively) produced a rapid rise in the blood sugar level and a return to normal during the next three hours. Breakfasts providing more protein (22 Gm. and 25 Gm. respectively) produced a maximal blood sugar rise which was lower than that following the breakfasts of lower protein content, but the return to normal was delayed beyond the three hour period.

The subjects on the higher protein breakfasts "reported a prolonged sense of well-being and satisfaction." The findings indicated that the beneficial effects of the high protein breakfast on the blood sugar level may extend into the afternoon.

Meat, man's preferred protein food, is a particularly desirable means of increasing the protein contribution of breakfast. The many breakfast meats available are not only temptingly delicious and add measurably to the gustatory appeal and variety of the morning meal, but they also provide biologically complete protein, B-complex vitamins, and essential minerals. *Meat for breakfast, a time-honored American custom, is sound nutritional practice.*

*Orent-Keiles, E., and Hallman, L. F.: The Breakfast Meal in Relation to Blood-Sugar Values, Circular No. 827, United States Department of Agriculture, Bureau of Human Nutrition and Home Economics, Agricultural Research Administration, Dec., 1949.

The Seal of Acceptance denotes that the nutritional statements made in this advertisement are acceptable to the Council on Foods and Nutrition of the American Medical Association.



American Meat Institute

Main Office, Chicago...Members Throughout the United States

Truck, with or without diagnostic x-ray or clinical pathologic laboratory facilities, is still under critical consideration by the Committee. Perhaps the use of individual groups or diagnostic teams from various teaching and hospital medical centers, who have had unusual experience in the diagnosis and treatment of cancer could make one day visits to the various rural medical areas, and possibly serve the same purpose as the more expensive mobile type of conveyance and personnel. The wishes and needs of the local medical professions and communities as to which method of approaching this problem is the most effective and practical should finally decide this issue.

New cancer service projects and educational programs are being developed conservatively and supervised by the Committee in the interest of the cancer problem in rural Missouri, but no new activity is initiated without the consent of the local medical organization.

The larger communities, especially St. Louis and Kansas City, are continuing their cancer activities in the diagnostic and detection clinic phases of the problem with special emphasis on professional training and lecture facilities for those physicians wishing to take advantage of so-called refresher courses in the diagnostic and treatment phases of cancer.

The Missouri Division of the American Cancer Society has financed many surgical, pathologic and radiologic conferences or seminars and all of these meetings have been well attended. The Committee would urge that more physicians take advantage of these educational opportunities.

The clinical and basic research facilities available at Washington and St. Louis Universities Medical Schools have been most helpful in St. Louis and nearby counties, while the Ellis Fischel State Cancer Hospital and the cancer facilities in Kansas City have taken care of the Western half of Missouri. The Eastern rural counties, approximately seventy-five in number, have been serviced by the Barnard Free Skin and Cancer Hospital. More than 21,000 cancer and skin consultations were recorded in 1949 at that institution, referred by the professions in these counties.

For the last several years practically every state health department or division has been allocated by the U. S. Public Health certain funds designated for use as "Cancer Grants." These funds were to be administered by and under the supervision and control of the respective state divisions of health for specified programs or projects such as early diagnostic facilities, prevention, control, diagnostic clinic expenditures, travel, nursing, distribution of literature, administrative costs, professional and lay education in the interest of the indigent cancer patient and those who administer cancer service. The present "Cancer Grant" in Missouri is approximately $98,000.00.

Heretofore, most of these funds, ear-marked as "Cancer Grants," were returned to the U. S. Treasury as nonallocated, because our state-wide program in Missouri had not been fully developed or sufficiently organized and there remained some confusion as to the desirability of accepting such cancer grants by local medical organizations for use in their respective communities.

During the present fiscal year, a supervisory arrangement has been perfected by the three separate state organizations upon whom the future state cancer programs' responsibility rests, whereby the Missouri State Medical Association, the American Cancer Society (Missouri Division) are cooperating with the Division of Health of Missouri in the designation and distribution of some of these "Grants for Cancer" throughout our state. This proposed method of lay and professional educational training and cancer service to the indigent patient was presented to the members of the Council at a recent meeting held in St. Louis. Since then certain projects have been initiated and agreed upon between the American Cancer Society (Missouri Division) and the State Division of Health for sharing the expenses of some of these professional and lay educational projects as well as clinical service programs in the interest of the indigent cancer patient. At present no money is available for treatment purposes.

1. The Committee strongly urges and recommends that a more extensive study should be initiated in relation to the future cancer needs and requirements of rural Missouri, not unlike the present spot-check survey recently completed by the Barnard Free Skin and Cancer Hospital and the counties served by that cancer institution.

2. Continued cooperation is recommended with the director of our State Health Division and the available "Cancer Grants" in the interest of more effective service by the medical profession for the indigent cancer sufferers.

E. C. Ernst, Chairman,
E. Kip Robinson,
Everett Sugarbaker,
William E. Leighton,
Marvin Napper.

The report of the Committee on Medical Economics, Carl F. Vohs, M.D., St. Louis, Chairman, follows:

REPORT OF THE COMMITTEE ON MEDICAL ECONOMICS

The Committee on Medical Economics met October 30, 1949. The Committee approved in principle the contribution agreement of the Blue Shield National Service Agency. The purpose of the agreement is to provide a mechanism for the enrollment of so-called national accounts in the various Blue Shield plans throughout the country.

The Committee recommends that whenever foundations, welfare or pension groups have been or intend to furnish medical care that they submit their programs to this Committee for review and recommendations.

As is customary, the Committee submits the following information regarding the activities of the voluntary medical care plans now operating in the state. In addition to the reports shown of the Blue Cross and Blue Shield, the Committee wishes to point out that there are many commercial insurance companies which are licensed by the state insurance department. These companies have many thousands of policyholders in the state with hospital or surgical care coverage or both.

Kansas City Blue Shield Surgical Medical Care

Membership, December 31, 1948	205,500
Membership, December 31, 1949	242,029
Reserve per agreement	$1.69
Reserve per participant	0.77
Number of cases during year	48,177
Amount paid to participating physicians during year	$1,863,550.78

Missouri Medical Service (Blue Shield) St. Louis

Membership, January 1, 1949	153,833
Membership, December 31, 1949	214,472
Reserve per agreement	$6.87
Reserve per participant	3.24
Number of cases during year	20,450
Amount paid to participating physicians during year	$1,233,003.00

Kansas City Blue Cross

Membership, December 31, 1948	251,451
Membership, December 31, 1949	279,908
Reserve per agreement	$4.27
Reserve per participant	1.94

Number of cases hospitalized	30,539
Number of days hospitalization	220,767
Average days stay for year	7.2
Amount paid hospitals during year	$1,554,933.25

St. Louis Blue Cross

Membership, January 1, 1949	877,099
Membership, December 31, 1949	953,713
Reserve per agreement	$8.36
Reserve per participant	3.61
Number of cases hospitalized	110,943
Number of days hospitalization	844,485
Average days stay for year	7.6
Amount paid hospitals during year	$7,067,725.03

CARL F. VOHS, Chairman,
MORRIS S. HARLESS,
C. T. HERBERT,
G. A. AIKEN,
A. P. ROWLETTE.

The report of the Committee on Maternal Welfare, E. Lee Dorsett, M.D., St. Louis, Chairman, follows:

REPORT OF THE COMMITTEE ON MATERNAL WELFARE

The Committee has been called upon on numerous occasions to furnish speakers for local and district meetings. The Committee stands ready at all times to cooperate with the program of the Association, all local societies and the Postgraduate Committee to furnish speakers.

The Committee deeply regrets that there is only one speaker on the program this year who will present an obstetric paper. This matter was entirely beyond the Committee's control.

It is the unanimous opinion of the Committee that this Association should have a separate section on obstetrics and it recommends that this matter be placed before the House of Delegates and the Council of the Association and that active steps be taken to form such a section. Many surrounding state associations have separate sections on obstetrics and other branches of medicine, as correspondence has shown. Their answer to the question as to attendance at these section meetings has been most favorable. A great number of physicians of the Association practice obstetrics and they, together with those who specialize in obstetrics, will be benefited greatly by the promotion of such a section.

From the Division of Health, this Committee has learned that there are a number of incomplete and indefinite causes of death listed on the maternal death certificates. A plan is now in progress for the Division of Health to send to this Committee the name of every maternal death with the physician's name and address. The Committee then will write this physician for a detailed report of this maternal death. All of these reports are to be strictly confidential and are to be used for an analytical study so that at the end of each year, there can be a definite and complete analysis of all maternal deaths in the state.

E. LEE DORSETT, Chairman,
LEO HARTNETT,
J. L. JOHNSTON,
E. E. WADLOW,
J. MILTON SINGLETON.

The report of the Committee on Infant Care, G. V. Herrman, M.D., Kansas City, follows:

REPORT OF THE COMMITTEE ON INFANT CARE

The Committee met March 29 in Kansas City. The following members were present: Drs. G. V. Herrman, Peter G. Danis, Park J. White, Eugene Schwartz, H. E. Petersen, D. B. Landau, Lynn Garner, of the State Division of Health, and Mr. T. R. O'Brien.

The Committee distributed 250 copies of the booklet "Standards and Recommendations for Hospital Care of Newborn Infants" during 1949 to physicians and pediatric and nursing divisions of hospitals throughout the state. These booklets were furnished by the Division of Health through the courtesy of Dr. Lynn Garner without cost to the Committee or Association.

Though infant and child mortality has shown a considerable decline in Missouri, mortality of premature infants is still a problem. The Committee is now formulating plans with the Committee on Maternal Welfare to provide programs for the various councilor district meetings on "Care of the Premature Newborn."

The Committee assisted the Committee on Scientific Work in arranging a Symposium on "Use and Abuse of Sulfonamids and Antibiotics in Pediatric Practice." The symposium will be presented at the coming Annual Session of the Association.

The one day refresher course in pediatrics recommended by the Committee to be presented at the time of the Annual Session of the Association was postponed for the time being because of other commitments of the Association.

G. V. HERRMAN, Chairman,
EUGENE SCHWARTZ,
H. E. PETERSEN,
PETER G. DANIS,
PARK J. WHITE,
JOSEPH C. JAUDON,
DANIEL B. LANDAU.

The report of the Committee on Health and Public Instruction, A. W. McAlester, III., M.D., Kansas City, follows:

REPORT OF THE COMMITTEE ON HEALTH AND PUBLIC INSTRUCTION

The Committee's idea of local "Health Forums" in rural areas took root and began sprouting in 1949. Five such Forums during the year, open to the public and free of charge, were held in Springfield, sponsored by the Greene County Medical Society, the Woman's Auxiliary of that society and aided somewhat by this Committee.

Toward the close of the year the Woman's Auxiliary of the Buchanan County Medical Society began considering plans for holding one or two such open forums in St. Joseph during 1950. The Committee is cooperating in this endeavor.

A good number of speakers was furnished by this Committee to public relations meetings of various county medical society auxiliaries, as well as to civic clubs and other group meetings.

The subjects used by these speakers covered many medical topics of lay interest and in numerous instances embraced a discussion of National Compulsory Health Insurance.

The Committee takes this opportunity to offer its services to county medical societies and their woman's auxiliaries in the promotion of lay health education in the year 1950.

Three hundred and fifteen thousand was the compiled attendance at the 1949 Missouri State Fair, August 21 through 28. Of this number a large portion viewed the Missouri State Medical Association Exhibit which was presented as a part of the lay educational program of the State Association's Committee on Health and Public Inctruction. The exhibit was housed in a 20 by 20 foot tent located just east of the educational building along one of the main thoroughfare pathways.

The display comprised two parts, embracing two definite purposes. One part of the exhibit had as an objective the presenting of practical and interesting medical and scientific information to a cosmopolitan lay audience. This was satisfactorily accomplished, it is thought, through that part of the display embracing pictures and descriptive information on "Diseases

Transmitted from Animals to Man," which was made available through the cooperation of the Bureau on Scientific Exhibits of the American Medical Association. The other part of the exhibit was based on the educational campaign of the American Medical Association in opposition to National Compulsory Sickness Insurance. The procedure in this instance was to display charts and other material showing the advance in medical science under the American free enterprise system, as evidenced by increased average life span and lowered morbidity and mortality rates in many diseases. Booklets and pamphlets against what is commonly termed "Socialized Medicine" along with informational material on Blue Cross and Blue Shield were well distributed.

The main feature of the literature distribution procedure was the offering of the 19 by 19 inch picture of "The Doctor," furnished by Whitaker and Baxter of the American Medical Association Educational Campaign, as a free souvenir to those visiting the exhibit. It was suggested to those receiving these pictures that they might well be framed and used to adorn the home, school or place of business.

Many of the exhibit visitors commented on their personal pleasure in seeing this type of an exhibit and used the opportunity to discuss the issue of Voluntary vs. Compulsory Health Insurance as well as the overall issue of the Welfare State.

A. W. McAlester, III, Chairman,
M. K. Underwood,
B. E. DeTar,
Joseph Conrad,
J. Earl Smith.

B. Landis Elliott, M.D., Kansas City, presented the following report from the Committee on Constitution and By-Laws, stating that there had not been time for a meeting of the Committee and therefore the report was not a recommendation of the full Committee.

REPORT OF THE COMMITTEE ON CONSTITUTION AND BY-LAWS

At a meeting of the Council of the Association in January, 1949, this Committee was instructed to employ an attorney and whatever other assistance was necessary to rewrite the by-laws. We had, during the year, the assistance of Mr. Homer Berger who has for many years been the attorney for the Jackson County Medical Society. Unfortunately, Mr. Berger was not in good health and for that reason the work was retarded. Mr. Berger died last week and Mr. Kozak of his office has taken his place.

About three weeks ago a revision of the by-laws was placed in the hands of the Committee and the members have been contacted by telephone, by letter and personally. The Committee has voted to place this revision before you but in so doing Drs. Allee, Loyd and Hammond have requested me to say that they do not recommend that you adopt every single detail.

Copies of the By-laws were distributed to members of the House of Delegates and Dr. Elliott continued.

This is largely along the lines of the action of the American Medical Association which adopted new by-laws in 1947. One of the principal changes in this proposed revision is the direct election of a Secretary and Treasurer by the House of Delegates.

The effect is a short and concise set of by-laws so that constant revision and amendment will not be necessary and to that end certain details of procedure have been left to be carried out by resolution.

The slides presented show five outstanding committees—Medical Economics, Medical Education, Public Welfare and Hospital, Publications and Scientific Work. To illustrate, the Committee on Medical Education and Public Welfare would be a state committee of five members who would have a chairman, cochairman and three members appointed by the President, and each member would be responsible for two councilor districts. An auxiliary committee with ten members, one in each councilor district, would organize these districts so that there would be a county committee in each county, a district committee in a district and the state committee. Advisory committees would be formed under the standing committees.

The organization chart, shown in the slide, shows the principal change is that the President of the Association would be the President of the Council. There is one Vice President in place of the present three, which makes for greater responsibility on the part of the Vice President.

Dr. Elliott moved the acceptance and referral to the proper committee of the report that further action might be had. The motion was seconded.

Robert E. Schlueter, M.D., St. Louis: This is a most important matter for this Association. I move a substitute to the present motion, that this be referred to the standing Committee on Constitution and By-Laws for study and that that Committee bring a majority report at the 1951 meeting of the House of Delegates of the Association. This motion was seconded.

Discussion followed by Drs. Elliott, Schlueter, Armand D. Fries, M.D., St. Louis; Curtis H. Lohr, M.D., St. Louis; C. T. Herbert, M.D., Cape Girardeau; Frank G. Mays, M.D., Washington; R. Emmet Kane, M.D., St. Louis; Herbert Mantz, M.D., Kansas City.

Upon question, the substitute motion that this report be referred to the standing Committee on Constitution and By-Laws for study and report to the 1951 House of Delegates carried.

Buford G. Hamilton, M.D., Jefferson City, newly appointed Director of Health of the State of Missouri, was introduced.

The report of the Committee on Fractures, Daniel L. Yancey, M.D., Springfield, Chairman, follows:

REPORT OF THE COMMITTEE ON FRACTURES

The Committee on Fractures in 1949 was composed of five members and two associate members. The function of the Committee is to provide information to the members of the profession in regard to the modern treatment of fractures, to cooperate with the Committee on Postgraduate Course and to provide speakers for various medical meetings.

With this aim in view the Committee has followed closely the program of the Regional Committee on Trauma of the American College of Surgeons, with emphasis being placed in "Accident Prevention," "Transportation of the Injured" and "Initial Treatment of Fractures." Individual members of the Committee have appeared before lay organizations and medical groups on these subjects. It was the plan of the Committee to sponsor a scientific exhibit at this year's meeting, but due to the illness of the member in charge, it had to be postponed.

The objectives of the Committee on Fractures are:

1. To encourage each County Medical Society to devote at least one program to fractures and associated trauma each year.

2. To continue public relations in cooperation with the American Red Cross, operators of ambulances and all those who render first aid in carrying out the established principles of emergency care and transportation of the injured.

3. The members of the Committee are willing to cooperate at all times with the Committee on Postgraduate Course and the program committees to provide speakers to the county society and Councilor District meetings.

Daniel L. Yancey, Chairman,
W. J. Stewart,
N. S. Pickard,
W. R. Bohne,
J. Albert Key,
Jacob Kulowski,
B. L. Murphy.

The report of the Committee on Conservation of Eyesight, C. Souter Smith, M.D., Springfield, Chairman, follows:

REPORT OF THE COMMITTEE ON CONSERVATION OF EYESIGHT

The Committee on Conservation of Eyesight had hoped to have the testing of the vision of school children throughout the state well established by this time. Work is proceeding on this but getting it underway has been a much longer process than was expected. Suggested charts have been studied and passed on by the National Society for the Prevention of Blindness and the approval of the Board of Education has been obtained. It is the hope of the Committee that this work may be started within the next year.

Close contact has been maintained throughout the year with the Missouri Bureau for the Blind and individual members of the Committee have worked with the Bureau.

The Committee has attempted to promote programs on eye work before society meetings and groups and is gratified that a few such presentations have been made during the last year.

The Committee continues to encourage physicians to be certified by the American Board of Ophthalmology and is available at all times to any physician to whom it may be of help.

No attempt was made during this session of the legislature to obtain a better law dealing with automobile drivers' licenses from the standpoint of vision. It was deemed unwise to undertake this this year but the Committee still wishes to promote such legislation.

The Committee asks the approval of the House of Delegates for the continuing of these projects.

C. SOUTER SMITH, Chairman,
ROBERT MATTIS,
A. N. LEMOINE, JR.,
C. P. DYER,
ROBERT S. MINTON,
WINFRED L. POST,
PHILIP LUEDDE,
JOHN MCLEOD,
G. J. TYGETT,
S. L. FREEMAN,
H. B. STAUFFER,
E. D. TENAGLIA.

The report of the Committee on Control of Venereal Disease, A. W. Neilson, M.D., St. Louis, Chairman, follows:

REPORT OF THE COMMITTEE ON CONTROL OF VENEREAL DISEASE

A meeting of the Committee took place February 8, 1950, in Jefferson City.

The report of the Division of Health was presented which outlined the progress in the new free penicillin program. This program was put into effect July 1, 1949, at the request of this Committee. At the outset penicillin was available only to the South Central region, however, later it was made available to the remainder of the state with the exception of St. Louis and Kansas City.

Scientific meetings were held in Cabool, June 17, and Waynesville, June 24. At these meetings it was explained how penicillin could be obtained from the Division of Health without cost, on request of a physician, for the treatment of syphilis and gonorrhea. The following subjects were presented to the physicians attending: E. M. Cannon, M.D., St. Louis, "Diagnosis and Treatment of Gonorrhea"; W. S. Sewell, M.D., Springfield, "Present Day Concepts in Treatment of Syphilis," and E. A. Belden, M.D., Division of Health, Jefferson City, "Mechanics of Venereal Disease Reporting."

The Committee evaluated the results of the program and urges that scientific subjects be presented at county medical society meetings during 1950 so that all physicians may be informed about latest methods of treatment.

The Committee was informed that the Midwestern Medical Center, St. Louis, will continue to operate at least until July 1, 1950.

The Committee also considered the advisability of including streptomycin and aureomycin in the list of drugs of the Division of Health and decided that they should not be included at present because of the cost.

The Committee expects to prepare scientific articles and editorials regarding present day methods of diagnosis and treatment of syphilis and gonorrhea for publication in THE JOURNAL. It was left to the Chairman to discuss this problem with the Editor of THE JOURNAL.

The Committee wishes to thank Dr. Belden of the Division of Health for his wholehearted cooperation in assisting the committee.

A. W. NEILSON, Chairman,
W. S. SEWELL,
CHARLES GREENBERG,
HUGH L. DWYER,
E. M. CANNON.

The report of the Committee on Industrial Health, Vincent T. Williams, M.D., Kansas City, Chairman, follows:

REPORT OF THE COMMITTEE ON INDUSTRIAL HEALTH

The Committee on Industrial Health met twice during 1949. In addition, several round-robin letters were sent to members of the Committee by the chairman asking for suggestions.

Under the direction of the Committee, a Symposium on "Industrial Health" was presented in St. Louis on October 11, and in Kansas City on October 12. Those appearing on the panel were A. J. Lanza, M.D., Professor of Industrial Medicine, New York University; H. A. VonAchen, M.D., Peoria, Medical Director of Caterpillar Tractor Company; Dudley A. Irwin, M.D., Pittsburgh, Medical Director of Aluminum Company of America; and Max R. Burnell, M.D., Detroit, Medical Consultant to General Motors Corporation.

In St. Louis, the program was presented at both medical schools in the afternoon before the senior classes. The Associated Industries of Missouri and the Division of Health sent out bulletins to all interested persons. Industrial nurses, hygienists and physicians attended evening programs.

It is hoped by the Committee that the program presented at the medical schools will help to stimulate the interest of the medical schools in the teaching of industrial health subjects. This has been a recommendation of the Committee for several years.

The Committee has continued to receive fine cooperation from the Division of Health of Missouri through its Bureau of Public Health Engineering. Mr. L. E. Ordelheide or Mr. Louis F. Garber of the Division have attended the meetings of the Committee.

The Committee is planning to present a symposium or panel discussion in the fall of 1950 for the benefit of the medical students and others. Arrangements will be completed at the next meeting of the Committee.

V. T. WILLIAMS, Chairman,
HORACE F. FLANDERS,
E. M. FESSENDEN,
A. M. ZIEGLER,
R. A. SUTTER,
R. EMMET KELLY,
H. M. ROEBBER.

The report of the Committee on Physical Medicine, F. Garrett Pipkin, M.D., Kansas City, Chairman, follows:

REPORT OF THE COMMITTEE ON PHYSICAL MEDICINE

I. The Committee on Physical Medicine would like to

advise the general profession of the status of most of the diathermy machines now in use. The old type machine is not properly shielded for television and will be outlawed shortly. The older type of machines still have a small trade-in value, as they can still be sold to physicians in sections where television is not proposed.

II. The Committee wishes to report on the progress of the Rehabilitation Institute in Kansas City. The Rehabilitation Institute under the leadership of its medical advisory committee had exhibits this year at the Missouri State Medical Association meeting and the Southwest Clinical Society meeting. Their exhibit received third place in the scientific exhibits at the state meeting.

The Institute has received a good deal of national recognition as an example of a community sponsored curative center, with reports of its work appearing in the 1949 "Report of the Baruch Committee on Physical Medicine," and in the new book, "New Hope for the Handicapped," by Howard Rusk, M.D., and Eugene Taylor.

As many doctors, even in Jackson County, continue unaware of the services available at the Rehabilitation Institute, it is felt that a brief survey of its work is in order. A report of this survey appeared in the March issue of The Journal.

Garrett Pipkin, M.D., Chairman,
Emmett Settle,
Luke A. Knese,
A. J. Kotkis,
J. L. Washburn.

The report of the Committee on Tuberculosis, E. E. Glenn, M.D., Springfield, Chairman, follows:

REPORT OF THE COMMITTEE ON TUBERCULOSIS

The Committee on Tuberculosis met in St. Louis on September 22, 1949, to consider the problems associated with hospitalization of tuberculous patients in general hospitals within the state.

Representatives of several groups and organizations interested in this problem met with the Committee. Among others, the following organizations were represented: Missouri Hospital Association, Missouri Tuberculosis Association, the Kansas City Tuberculosis Society, St. Louis Tuberculosis Society and the Missouri State Division of Health.

The discussion at this meeting made quite clear that the lack of facilities in Missouri at the present time for the proper care of the tuberculous patients is a health need of major magnitude. At this meeting the following reasons were crystallized for caring for tuberculous patients in general hospitals:

1. For diagnosis.
2. To break contact with other members of the family.
3. To initiate treatment, since many procedures (both medical and surgical) can be started only in the hospital.
4. Emergency treatment of patients having tuberculosis for non-tuberculous conditions, surgery, orthopedic injuries.
5. Great teaching value in having the patient in the institution as staff and nurses learn technics otherwise unavailable.
6. Many sanatoria unable to admit patients because of inadequate staff within those institutions.

The chairman of the Committee addressed the Missouri Hospital Association at its annual meeting in St. Louis November 18, 1949, on the subject of the care of tuberculous patients in general hospitals. Much interest was shown in the problems involved.

The Committee has aided in all ways possible to improve conditions at the Missouri State Sanatorium. It has been particularly active in obtaining better salaries for resident members of the medical staff of that institution so that American Board members will be attracted and the institution enabled to qualify for the training of residents. The Committee has offered to work with Governor Smith in an advisory capacity in this regard and he has replied expressing his appreciation for the help offered.

It is felt that some headway has been made in solving these problems.

E. E. Glenn, Chairman,
Lawrence E. Wood,
J. L. Mudd,
Paul Murphy,
C. A. Brashear,
W. P. McDonald,
I. J. Flance,
Florence E. MacInnis.

The report of the Committee on Rural Medical Service, R. W. Kennedy, M.D., Marshall, Chairman, follows:

REPORT OF THE COMMITTEE ON RURAL MEDICAL SERVICE

During 1949, sixty-three physicians located for the first time in rural Missouri. Many of these received information on their locations through the placement service maintained in the headquarters office of the State Association. A careful up-to-date file of locations is maintained in the office as well as a listing of those seeking locations. Inasmuch as most communities seeking physicians are in rural areas, the Committee again sponsored two panel discussions, one in St. Louis and one in Kansas City, on rural practice for the benefit of the senior medical students, interns and residents.

On February 15, 1950, the St. Louis Medical Society, the St. Louis County Medical Society and this Committee held a dinner and rural practice panel discussion at the St. Louis Medical Society Banquet Room for the senior medical students, interns and residents of greater St. Louis. A panel of four physicians from rural communities, namely, J. W. Well, M.D., Palmyra; Martin M. Hart, M.D., Salem; George Watkins, Jr., M.D., Farmington; and Fred M. Hunter, M.D., Bowling Green, answered and discussed the many questions concerning all aspects of rural practice directed to them by the many medical seniors, interns and residents present. Wallis Smith, M.D., President of the State Association, served effectively in the capacity of moderator for the discussion.

On March 16, 1950, the Jackson County Medical Society in cooperation with this Committee held a similar dinner and panel discussion at General Hospital No. 1 in Kansas City. The panel members were: A. E. Spelman, M. D., Smithville; R. B. Wray, M.D., Nevada; Robert Smith, M.D., Marceline; and Robert Best, M.D., Higginsville. Again Dr. Wallis Smith, serving as moderator, directed the discussion most effectively.

On both of these occasions the senior medical students, interns and residents were urged to ask questions of the panel, most of which it was anticipated could be answered adequately from the actual experience of the panel members. In addition they were urged to contact the State Association office for specific information on locations.

Members of the Committee attended the Fifth National Rural Health Conference held in Kansas City, February 3 and 4, 1950. A. E. Spelman, M.D., Smithville, served as chairman of one of the discussion groups on the February 3 afternoon program. Ray McIntyre, Field Secretary, also appeared on the February 3 program as a discussion leader for one of the groups. Some 500 persons, including lay and professional, attended the Conference with a good number of these from Missouri.

It is felt that conferences of this type which bring together leaders of national farm organizations with representatives of medical societies, public health personnel and others interested in rural health is helping greatly in developing cooperative action toward the solution of rural health problems over the nation.

The committee feels that communities in Missouri

"The . . . estrogen preferred by us is 'Premarin,' a mixture of conjugated estrogens, the principal one of which is estrone sulfate."

Hamblen, E. C.: North Carolina M. J. 7:533 (Oct.) 1946.

In treating the menopausal syndrome with "Premarin," Perloff* reports that "Ninety-five and eight tenths per cent of patients treated with 3.75 mg. or less daily obtained complete relief of symptoms"; also, "General tonic effects were noteworthy and the greatest percentage of patients who expressed clear-cut preferences for any drug designated 'Premarin,'"

Thus, the sense of "well-being" usually imparted represents a "plus" in "Premarin" therapy which not only gratifies the patient but is conducive to a highly satisfactory patient-doctor relationship.

Four potencies of "Premarin" permit flexibility of dosage: 2.5 mg., 1.25 mg., 0.625 mg. and 0.3 mg. tablets; also in liquid form, 0.625 mg. in each 4 cc. (1 teaspoonful).

*Perloff, W. H.: Am. J. Obst. & Gynec. 58:684 (Oct.) 1949.

ACCEPTED COUNCIL ON PHARMACY AND CHEMISTRY AMERICAN MEDICAL ASSOCIATION

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While sodium estrone sulfate is the principal estrogen in "Premarin," other equine estrogens...estradiol, equilin, equilenin, hippulin...are probably also present in varying amounts as water-soluble conjugates.

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needing doctors need to take steps to attract a physician. In many cases this may be done through community action in building clinics and hospitals, through financial backing of a young physician just starting, through making available office space and living quarters and by making communities more attractive generally. The Committee also feels that medical schools can and should, throughout their contacts with medical students, put a much greater emphasis on general practice and particularly that in smaller communities where the need is greater at present and portends to be for an indefinite period of time.

General practice residencies, preceptorships and other efforts now in effect in various states, exemplify additional efforts to provide a better distribution of medical manpower.

R. W. Kennedy, Chairman,
A. E. Spelman,
J. W. Well,
Martin M. Hart,
R. B. Wray.

The report of the Committee on Diabetes, W. H. Olmsted, M.D., St. Louis, Chairman, follows:

REPORT OF THE COMMITTEE ON DIABETES

The facts brought to light in the last few years concerning diabetes as a public health problem warrented the creation of a special committee on diabetes in this state as has been done in many others. The medical profession is confronted with facts that there are as many diabetic persons who are unaware of the existence of this condition as there are those who know that they have diabetes. It is of paramount importance that these thousands of diabetic persons in Missouri be given the opportunity to consult a physician and have the benefit of treatment. This is a problem the solution of which is squarely up to the medical profession. The Committee believes that this is a huge task which will not be accomplished short of years of hard work. In fact, it is as yet ignorant of the best technic to be used in testing the urine of masses of people. Of this, the Committee is sure that when this technic becomes available, the success will be due to the aroused interest of the county medical societies.

Even were the medical profession fully equipped with the best technic and eager to conduct and lead compaigns whose purpose was to discover the people with glycosuria, one would not get far if the public were not aware of what diabetes is and what the profession can do about it. Cooperation between the public and profession is essential. But public cooperation is not forthcoming unless they are told about diabetes.

The Committee with these considerations in mind have the following program to suggest:

1. Give consideration to the formation of a committee on diabetes in each county society.

2. The county committees can contact the state Committee on Diabetes for help and advice. In particular, the latter Committee will furnish a list of speakers available here and in neighboring states and the subjects on which they are prepared to speak. Or the state Committee will furnish the men to conduct clinics on diabetes.

3. The Committee urges the county committees to write newspaper articles informative about diabetes. Of course, such articles would bear the signature of the county society or the diabetes committee, not, of course, the names of individual physicians. It is urged that the radio be used for informative talks on diabetes.

4. The Committee will see that the county committees receive the literature published by the American Diabetes Association whose council and officers are eager to help in every way.

If the county societies will take the initiative in these matters, a beginning will be made in the problem of diabetes.

This report would not be complete without reference to a subject that has had the attention of physicians everywhere interested in the public health aspect of diabetes: That is Self Testing. The testing for glycosuria has become a simple procedure. So simple in fact that heating test tubes is no longer necessary. So simple that expert knowledge is unnecessary in the reading of the test. Several of such simple tests have been made available by responsible manufacturers. The advertising committee of the *Journal of the American Medical Association* has accepted the advertising of two of these companies. The American Diabetes Association has accepted the principle of self testing by the public for glycosuria. The House of Delegates of the American Medical Association will in all probability be asked to accept self testing in principle very soon, perhaps at its coming meeting. For these reasons, this Committee is of the opinion that self testing by the public can be encouraged as one means of discovering glycosuria. Unfortunately, the testing outfits cost just enough to discourage their wide use. The Committee will at a future date recommend for consideration the approval of self testing for glycosuria to this House of Delegates.

W. H. Olmsted, Chairman,
Donald R. Black,
Lucien W. Ide,
Edgar D. Baskett,
Llewellyn Sale.

The report of the Committee on Poliomyelitis, C. T. Herbert, M.D., Cape Girardeau, Chairman, follows:

REPORT OF THE COMMITTEE ON POLIOMYELITIS

The Committee met in Jefferson City on August 25 on invitation of the State Director of Health. Those in attendance were Drs. Carl F. Vohs, John S. Sennott, C. T. Herbert, W. J. Stewart, Mr. Jack Putney, State Representative of the National Foundation for Infantile Paralysis, Dr. Kenneth S. Landauer, Medical Director of the National Foundation for Infantile Paralysis, and Dr. C. F. Adams, Director of Health.

The then raging poliomyelitis epidemic was discussed and methods of uniformity of treatment and handling these cases were brought to the attention of the Committee. It was recommended that the St. Louis Orthopedic Society submit a uniform plan of treatment for the cases of poliomyelitis throughout the state.

It is the hope of the Committee that plans can be formulated to handle the situation more readily in the event of another outbreak of the disease.

C. T. Herbert, Chairman,
Carl F. Vohs,
N. S. Pickard,
Frank Daley,
John S. Sennott.

The report of the Committee on Anesthesiology, H. J. Freiheit, M.D., St. Louis, Chairman, follows:

REPORT OF THE COMMITTEE ON ANESTHESIOLOGY

Insofar as this Committee is primarily concerned with the improvement of care of the patients of Missouri, it has cooperated fully with the Missouri Society of Anesthesiologist's program for the training of the part time anesthesiologist. This society has inaugurated a plan which includes the establishment of a speakers' bureau, a monthly training bulletin and nine training centers which any doctor may attend for assistance in any phase of anesthesia desired.

The speakers' bureau consists of a group of well trained anesthesiologists who have agreed to address the various county medical societies at their regular meetings. To date, six such societies have requested this service.

The monthly training bulletin consists of articles on some aspect of modern anesthesia which are sent each month to every doctor in the State of Missouri who is

actively engaged in the part time admistration of anesthetics.

The establishment of training centers in St. Louis and Kansas City is, in reality, a part of the program of the American Society of Anesthesiologists. There are nine hospitals to which any physician may go for training in any phase of anesthesia desired. Attendance is entirely at the convenience of the individual concerned and is free of cost or obligation.

Results have been exceedingly gratifying and it is hoped that these activities will continue through the coming year.

C. R. McCUBBIN, Chairman,
JOS. McNEARNEY,
H. J. FREIHEIT,
O. T. BLANKE,
M. C. PETERSON.

H. J. FREIHEIT, M.D., St. Louis: Since the submission by the Committee on Anesthesiology of the previous report, it has come to our attention that, in certain sections of the country, the Blue Cross Hospitalization Plan has voted to include in their contracts, to furnish the services of physicians in the fields of anesthesiology, radiology and pathology on a fixed fee basis.

It is our understanding that such an arrangement is in direct violation of the position taken by the American Medical Association and the Missouri Medical Service plan, that physician's services be maintained apart from hospitalization services. If Blue Cross organizations are permitted to control the practice of medicine in these three fields, what is to prevent the ultimate extension of their control to all other fields of medical practice?

It is our recommendation therefore that the Missouri State Medical Association should take a firm stand against this threat to medical practice. We wish to present the following resolution:

WHEREAS, Blue Cross Hospital Plan has recently approved the inclusion in their contracts of the professional services of physicians in the special fields of anesthesiology, radiology and pathology, and

WHEREAS, The American Medical Association and the Missouri State Medical Association have held that the professional services of physicians in these fields of anesthesiology, radiology and pathology should be maintained separate from hospital services, therefore be it

Resolved, That this House of Delegates at the 92nd Session of the Missouri State Medical Association reaffirm its stand on this question and that copies of this resolution be sent to St. Louis Blue Cross Plan, Kansas City Blue Cross Plan, Blue Cross National Committee and various medical specialty organizations in these fields.

The report of the Council, J. W. Thompson, M.D., St. Louis, Chairman, follows:

REPORT OF THE COUNCIL

Meeting of May 7, 8

The Council met at the Mark Twain Hotel, Hannibal, on May 7 and 8, 1949, with J. W. Thompson, M.D., St. Louis, Chairman, presiding. Those present were Drs. Donald M. Dowell, Chillicothe; W. F. Francka, Hannibal; J. W. Thompson, St. Louis; Otto W. Koch, Clayton; J. F. Jolley, Mexico; R. W. Kennedy, Marshall; C. Edgar Virden, Kansas City; E. C. Bohrer, West Plains; Frank W. Hall, Cape Girardeau; Wallis Smith, Springfield; C. E. Hyndman, St. Louis; W. A. Bloom, Fayette; R. E. Schlueter, St. Louis; H. E. Petersen, St. Joseph; Howard B. Goodrich, Hannibal; R. O. Muether, St. Louis; Mr. W. H. Bartleson, Kansas City; Mr. D. E. Caywood, Springfield; Mr. Lemoine Skinner, St. Louis; Mr. Raymond McIntyre, St. Louis; Mr. T. R. O'Brien, St. Louis.

PURPOSES

Dr. Smith gave the purposes of the session as (a) plans for the Centennial Session of the Association in 1950; (b) discussion of the situation of the four year medical school; (c) federal legislation including socialized medicine; (d) resolutions referred to the Council by the House of Delegates.

VETERANS ADMINISTRATION CONTRACT

Mr. O'Brien presented a letter from the Veterans Administration enclosing a renewal of the contract between the Administration and the Association. Upon motion of Dr. Petersen, it was voted to renew the contract.

ADVISORY COMMITTEE TO DIVISION OF HEALTH

Upon presentation of a request that the Council appoint a committee which would serve in an advisory capacity to the State Division of Health, and upon motion of Dr. Koch, the Chairman was instructed to appoint a committee of three members to serve in this capacity.

NATIONAL SOCIETY FOR MEDICAL RESEARCH

After brief discussion of the work of the Society, upon motion of Dr. Francka, it was voted to send the Society $50.00 again this year.

ALTERNATE DELEGATE

The resignation of Dr. Mantz as alternate delegate to the A. M. A. was presented. After discussion it was left to the Chairman to appoint an alternate delegate in Dr. Mantz place.

N. P. C.

A statement concerning the closing of the National Physicians Committee was read.

ENLISTMENTS IN SERVICE

Mr. O'Brien read a letter from the Office of the Secretary of Defense which stated that seven physicians of the quota of fifty-nine from Missouri have applied for commissions.

COMMITTEE ON POLIOMYELITIS

A request for a committee of the Association on Poliomyelitis was presented. After discussion, upon motion of Dr. Petersen, the Chairman was instructed to appoint such a committee.

REPORT OF FIELD SECRETARY

Mr. McIntyre reported on various meetings which have been held in the state since the Annual Session, including a meeting of the Cole County Medical Society on April 5; public relations meetings held by the Auxiliary at Festus on April 7 and at Rolla on April 8; a meeting of the 10th Councilor District at Kennett on April 20; a talk before the Kiwanis Club of Springfield on April 22; a meeting of about twenty counties at Nevada on April 28. He announced a meeting on May 19 of the 9th Councilor District at Rolla and on May 26 of the 2nd Councilor District at Moberly. It was reported that eight physicians had located in rural areas in the last month. Mr. McIntyre explained that the Missouri Health Council had arranged for exhibit space at the State Fair, August 21 to 28, and were offering exhibit space to organizations interested in health work.

Upon motion of Dr. Virden, it was voted to have an exhibit at the State Fair and to ask the Committee on Public Health and Instruction to assist in selecting and preparing the exhibit.

HANDBOOK

After discussion of the resolution referred by the House of Delegates calling for a committee of three to prepare a handbook containing information and a listing of physicians in the State of Missouri, the Chairman appointed the following committee: Dr. Petersen, Chairman; Dr. Hall and Dr. Kennedy. The committee was asked to present plans for the book to the Council for approval.

RESOLUTION ON LOCATION OF ASSOCIATION HEADQUARTERS

The resolution referred to the Council by the House

of Delegates on the relocation of the Association office in Jefferson City was discussed. The following committee was appointed to study this and report to the Council: Dr. Hyndman, Chairman; Dr. Francka and Dr. Bohrer.

LEGISLATION

Mr. O'Brien reported that S. B. 200, regarding rebates, was in the Senate Committee on Education; that H. B. 286, regarding the hospital licensing law was in the House Committee on Civil and Criminal Procedure. He stated that other bills in which the Association had been interested were H. B. 49 on chiropody; H. B. 54 regarding the qualifications of the director of mental health; two bills which dealt with the merit system; No. 262 on unemployment compensation which would change the law from employment of eight persons to three persons.

RESOLUTIONS AGAINST SOCIALIZED MEDICINE

Mr. O'Brien reported various organizations who had passed resolutions opposing compulsory health insurance and pointed out the importance of such resolutions and asked that reports of such resolutions be reported to the Association office. He read letters from Congressmen in reply to the resolution which was adopted by the House of Delegates and sent to President Truman and to Congressmen.

VISUAL AIDS IN TALKS

Mr. Skinner told of his attempts to locate material in connection with the Council's suggestion that slides or something of similar nature be in the Association office for assistance of physicians giving talks. Mr. Skinner said that nothing was available in the A. M. A. offices and suggested that the Missouri State Medical Association work out a series of strip slides for this purpose. He showed as an illustration slides and a prepared talk by the Committee for the Nation's Health in support of socialized medicine.

PUBLIC RELATIONS WORK

In regard to continuing public relations work, the following committee was appointed to plan for the immediate time prior to the possibility of placing this before the Committee on Public Policy and Public Relations: Dr. Hyndman, Chairman, Dr. Virden and Dr. Muether. The committee was asked also to discuss with Mr. Skinner ways and means of supplying strip films for the members and to report back to the Council.

TREASURER'S REPORT

The Treasurer reported on the financial status of the Association and, on motion, his report was accepted.

FOUR YEAR MEDICAL SCHOOL

After considerable discussion of the situation on the four year medical school, the material which Mr. Skinner has compiled and the joint resolution which has been introduced in the Senate asking for a commission to study the four year school, the following motion by Dr. Smith was adopted: That the Council present the factual information to Dr. Hendren to present and use before the Board of Curators and that it be released to the press at the same time. The following amendment to the motion was adopted: If further information is deemed necessary or clarification desired, a committee of the Council will appear before the Board, if requested.

After discussion Dr. Muether was requested to draw up a resolution introducing this subject.

The following resolution was adopted:

Whereas, Because of public need and in the interest of public health and in the furtherance of medical education, the Council of the Missouri State Medical Association reaffirms its belief that a four year medical school under the auspices of the University of Missouri is necessary be it

Resolved, That factual information obtained in an impartial survey by the Council is of value to the Board of Curators and the public, therefore be it further

Resolved, That this factual information be made available to the Board of Curators of the University and to the public.

CENTENNIAL SESSION

It was suggested that since the next Annual Session would be the 100th anniversary of the Association, that the usual Committee on Arrangements of three be enlarged. The following were named as the General Committee on Arrangements: Drs. Thompson, Koch, Francka, Hall, D. L. Hexton, John F. Patton, R. E. Schlueter, Ralph E. Duncan, Wallis Smith, H. E. Petersen, W. A. Bloom.

HISTORY OF ASSOCIATION

Dr. Schlueter was asked to prepare a history of the Association for use in connection with the Centennial Annual Session.

MEDICAL MORBIDITY

A request from Dr. Lively of the Rural Sociology Department of the University of Missouri for financial assistance from this organization in a study being made on medical morbidity was referred to the Committee on Rural Medical Service for study and report.

ADVISORY EDITORIAL BOARD

Upon the suggestion of Dr. Muether and on motion of Dr. Koch, Dr. Muether was authorized to set up an Advisory Editorial Board.

COMMITTEE ON AWARDS

It was pointed out by the Committee on Awards that it was difficult to select a practitioner from the state and term him the "Outstanding General Practitioner." Several suggestions were made concerning the honoring of several outstanding men at each annual session. Upon motion, the Committee on Awards was disbanded and the Chairman was instructed to appoint a secret committee based on the procedure of the committee of the A. M. A.

LOCATION OF ASSOCIATION OFFICE

The Committee appointed to study the resolution referred by the House of Delegates on moving the headquarters office to Jefferson City, recommended that the report of the Reference Committee on Resolutions of the House of Delegates be accepted; that is, that the time was not propitious for such a move. Upon motion of Dr. Hyndman, the report was accepted.

HANDBOOK

Dr. Petersen reported that the committee had had some discussion and asked more instructions of the Council on the preparation of the Handbook. He stated that the committee would be prepared to give a report of progress at the next meeting of the Council.

ASSESSMENT

Dr. Smith spoke briefly concerning the urgency of members paying the A. M. A. assessment, and presented Councilors with reports of their districts on members who have paid.

DR. FRANCKA THANKED

Dr. Bloom addressed the session briefly and moved that Dr. Francka be thanked for the hospitality extended the Council. This motion was passed enthusiastically.

COMMITTEE REPORT ON PUBLIC RELATIONS

The committee reported that it considered the employment of Mr. Skinner to develop, under the auspices of the Committee on Public Policy and Public Relations, a group of visual aids with scripts for the Association members and recommended that the Executive Secretary negotiate the details with Mr. Skinner and that the compensation for the work be approved by the Chairman of the Council, the President and the Treasurer.

AUDRAIN COUNTY HOSPITAL PETITION

The Board of Trustees of the Audrain County Hospital have filed a petition with the Audrain County Circuit Court asking that the Court determine the rights, powers and duties of the Board of Trustees in relation to who may practice in the Audrain County Hospital.

At the present time Doctors of Medicine only are permitted to practice in the hospital. The osteopaths are excluded at present by virtue of the opinion of the Attorney General, dated September 9, 1939, in which it is stated that the Board of Trustees may permit only a licensed doctor of medicine to practice in the hospital.

On motion, the Chairman of the Council was instructed to secure the necessary legal advice on the question.

COMMITTEE ON PUBLICATION

The following Committee on Publication was named: Drs. Muether, Chairman, H. E. Petersen, V. T. Williams, M. D. Overholser and Paul O. Hagemann.

Meeting of September 17, 18

The Council met at the Sheraton Hotel, St Louis, on September 17, 18, 1949, with J. W. Thompson, M.D., St. Louis, Chairman, presiding. Those present were Drs. Donald M. Dowell, Chillicothe; W. F. Francka, Hannibal; J. W. Thompson, St. Louis; Otto W. Koch, Clayton; J. F. Jolley, Mexico; R. W. Kennedy, Marshall; C. Edgar Virden, Kansas City; W. S. Sewell, Springfield; E. C. Bohrer, West Plains; Frank W. Hall, Cape Girardeau; Wallis Smith, Springfield; H. E. Petersen, St. Joseph; W. A. Bloom, Fayette; C. E. Hyndman, St. Louis; R. E. Schlueter, St. Louis; A. N. Arneson, St. Louis; R. E. Duncan, Kansas City; F. T. H'Doubler, Springfield; Armand D. Fries, St. Louis; Mr. Lemoine Skinner, St. Louis; Mr. D. E. Caywood, Springfield; Mr. Ray McIntyre and Mr. T. R. O'Brien, St. Louis.

The minutes of the last meeting were approved.

A. M. A. INTERIM SESSION

Mr. O'Brien reported that the St. Louis Convention Bureau had requested the Association to invite the A. M. A. to hold its Interim Session in 1951 in St. Louis. Upon motion of Dr. Bloom, it was voted that this invitation be extended the A. M. A.

SOUTHERN MEDICAL ASSOCIATION

Dr. Thompson reported that the St. Louis Medical Society had invited the Southern Medical Association to meet in St. Louis in 1950.

UNITED MINE WORKERS

Mr. O'Brien read a letter from the United Mine Workers of America asking if doctors would participate in their program under the welfare fund. This was referred to the Committee on Medical Economics.

BOYS TOWN

A letter was read from the chairman of the board of Boys Towns asking that the Council approve Boys Town and asking permission to send a letter to doctors asking contributions for Boys Town. Upon motion of Dr. Sewell, Boys Town was approved and permission granted for a letter to go to members.

POSTGRADUATE COURSE FOR TECHNICIANS

A letter was read from Dr. A. P. Rowlette, Moberly, suggesting that a postgraduate program be given laboratory technicians, probably in connection with the Annual Session. Mr. McIntyre said that he had discussed this with Dr. Hollis Allen and that he favored the project. After discussion by Drs. Duncan and Petersen and upon motion by Dr. Dowell, it was suggested that the office contact Dr. Allen and ask his assistance in arranging a refresher course for technicians and, if possible, also arrange a program for office secretaries, in connection with the Annual Session.

MORBIDITY SURVEY

A letter was read from Dr. Lively of the Rural Sociology Department of the University asking cooperation, both in financing and in examinations, in a sample survey of morbidity among rural people in the state, the project to cover five years. After discussion by Mr. McIntyre and Dr. Kennedy, and upon motion of Dr. Bloom, this was referred to the Committee on Rural Medicine for further study.

MEMBERSHIP

A letter sent to Dr. Smith and Dr. Petersen was read presenting the problem of a member of Jackson County Medical Society moving his membership to a county in Kansas while still maintaining a practice in Missouri. Dr. Schlueter suggested that a ruling be obtained from the Judicial Council of the A. M. A. Upon motion of Dr. Petersen, it was decided that action should be taken according to the ruling given by the Judicial Council.

INDUSTRIAL HEALTH

Mr. O'Brien reported that the Committee on Industrial Health would sponsor the presentation of a symposium on Industrial Health in the two schools in St. Louis and one in Kansas City beginning on October 11. Dr. Vincent T. Williams, Kansas City, will serve as moderator, and speakers will be Dr. A. J. Lanza, New York; Dr. Harold A. VonAchen, Peoria; Dr. Dudley A. Irwin, Pittsburgh, and Dr. Max R. Burnell, Detroit. Upon motion of Dr. Virden, the Committee was authorized to spend up to $550.00 on this program.

EXHIBIT AT STATE FAIR

Mr. McIntyre reported and showed a picture of the exhibit which the Association presented at the State Fair at Sedalia, August 21 through August 28. The report was received favorably and upon motion of Dr. Dowell, the office was instructed to look into the possibility of presenting exhibits at appropriate shows in the future.

ANNUAL SESSION PROGRAM

Dr. Arneson gave a brief report on the program of the Annual Session, which will celebrate the 100th anniversary of the Association. He said that color television, sponsored by Smith, Kline & French, would be one of the features of the meeting, color television being presented for the first time in Missouri. Upon motion of Dr. Smith, Dr. Arneson was thanked for his work on the program and Councilors were requested to talk to members about the Session.

TREASURER'S REPORT

Dr. Hyndman presented a financial statement and reported the financial condition of the Association as being satisfactory. Upon motion, his report was accepted.

A. M. A. ASSESSMENT

Mr. O'Brien reported that of 3,526 members, 2,204 had paid the A. M. A. Assessment. Councilors were given a report on their districts. Upon motion of Dr. Kennedy, it was decided that lists of members be sent

to secretaries of county societies asking them to check on members who have not paid the assessment, whether they are able to pay or not, and to encourage those that are able to do so, to pay the assessment.

AMERICAN CANCER SOCIETY

Dr. Virden reported briefly on the reorganization of Missouri Branch of the American Cancer Society, stating that they have a new executive secretary and that work is progressing. He said the society would like to place speakers on Councilor District meetings and reported on a meeting held at Moberly where the society furnished most of the speakers.

FIELD SECRETARY'S REPORT

Mr. McIntyre reported on meetings held since the last meeting of the Council and gave dates of meetings that will be held in the near future. He also told of doctors who have located in Missouri in the last few months, giving locations as Houston, Clarksville, Glasgow, Mountain Grove, East Prairie, Stewartsville, Fairfax, LaPlata, Shelbina, Monroe City, Jefferson City (3), Columbia (3), Valley Park, Farmington, Bethany, Charleston, Wright City, Ashland, Versailles, Flat River, Marshfield, Republic, Mountain View, Stanberry, Chillicothe, Centralia, Springfield (16).

HANDBOOK

Dr. Petersen reported on the proposed content of the Handbook and suggested that it be prepared during this year but that distribution be held until the Annual Session as an added feature of the 100th Anniversary. Upon motion of Dr. Bloom, this was accepted.

HISTORY OF ASSOCIATION

Dr. Schlueter reported on his work on writing the history of the Association, giving examples of how he was handling it. Dr. Smith expressed appreciation for the Council and upon motion of Dr. Virden, the work was approved and Dr. Schlueter was officially thanked.

LEGISLATION

Mr. O'Brien reported briefly on state and national legislation, giving the information on the Audrain County Hospital suit and stating that Judge Sam Blair, Jefferson City, will hear the case and that a pretrial conference will be held on October 1. Mr. O'Brien stated that the Missouri House will meet on September 20 and the Senate will go into session on October 11. It is not known yet whether bills before the legislature will be considered or only revision legislation. The work of Dr. Lawrence in Washington was praised as well as Senators Donnell and Kem for their support.

PUBLIC RELATIONS

The minutes of a meeting of the Committee on Public Policy on June 19 were read, in which a state setup on public relations was outlined as follows: Each county society would have a committee of three, one named as chairman, these forming a district group; one member to be appointed by the Councilor from each Councilor District to be chairman of that district, with the Association Committee over all. Dr. Fries asked for an appropriation to call such a group together for a one day meeting. Upon motion of Dr. Sewell, such an appropriation was granted.

STRIP FILM

Mr. Skinner reported on his work on a strip film, which had been discussed at the previous Council meeting. Copies of the talk were presented to the Council. Mr. Skinner reported that he had been in touch with Whitaker and Baxter and that there was a good possibility that they would take over the production of the project. Suggestions were made by Councilors who had had opportunity to study one of the copies prior to the meeting, that it be brought out more strongly that socialized medicine is just one of the facets of statism. Upon motion of Dr. Smith, the work was approved in general and Mr. Skinner was instructed to continue with the work.

Meeting of November 26, 27

The Council met at the Sheraton Hotel, St. Louis, on November 26 and 27, 1949, with J. W. Thompson, M.D., St. Louis, Chairman, and E. C. Bohrer, M.D., West Plains, Vice Chairman, presiding. Those present were Drs. Donald M. Dowell, Chillicothe; W. F. Francka, Hannibal; J. W. Thompson, St. Louis; Otto W. Koch, Clayton; J. F. Jolley, Mexico; C. Edgar Virden, Kansas City; W. S. Sewell, Springfield; E. C. Bohrer, West Plains; Frank W. Hall, Cape Girardeau; Wallis Smith, Springfield; W. A. Bloom, Fayette; C. E. Hyndman, St. Louis; H. E. Petersen, St. Joseph; F. T H'Doubler, Springfield; R. E. Schlueter, St. Louis; Howard B. Goodrich, Hannibal; W. L. Allee, Eldon; R. O. Muether, St. Louis; R. E. Duncan, Kansas City; Carl F. Vohs, St. Louis; Armand D. Fries, St. Louis; Robert Mueller, St. Louis; B. L. Sinner, St. Louis; A. N. Arneson, St. Louis; Mr. Lawrence Bradley, Kennett; Mr. J. W. Foristel, Washington, D. C.; Mr. Lemoine Skinner, St. Louis; Mr. W. H. Bartleson, Kansas City; Mr. D. E. Caywood, Springfield; Mr. Raymond McIntyre, St. Louis; Mr. T. R. O'Brien, St. Louis.

COMMITTEE OF THE WHOLE

There lacking a quorum at the beginning of the session, upon motion of Dr. Virden, those present constituted themselves a committee of the whole and proceeded with business. Upon a quorum being present, upon motion of Dr. Virden, the committee was dismissed and the Council was declared in session.

STATE CANCER HOSPITAL

A letter to Dr. Smith from Dr. Johnson of the Ellis Fischel State Cancer Hospital concerning the difficulty of obtaining men for the medical staff because of the two year Missouri residency law was discussed. It was pointed out that a bill concerning the merit system which is pending will take care of this situation.

PSYCHOLOGY EXAMINING BOARD

A letter to Dr. Smith concerning the setting up of an examining board for psychology was presented. After discussion this was referred to the Committee on Mental Health upon motion of Dr. Smith.

CHICAGO MEETINGS

Mr. O'Brien reported on the Secretary-Editor's conference in Chicago which was followed by a Public Relations Conference of state associations.

MR. LAWRENCE BRADLEY

Mr. Lawrence Bradley, Kennett, was introduced and discussed the suit brought by the board of the Audrain County Hospital and answered questions. He stated that the time of December 12 which was set for Judge Blair to hear the case had been postponed and another date will be set.

BANQUET SPEAKER

It was announced that Mr. Alex Dreier would be the speaker at the Annual Banquet in honor of Past Presidents.

ALCOHOLISM AS DISEASE

A letter from Dr. S. D. Smith, Columbia, concerning the question of alcoholism being a disease was discussed and upon motion of Dr. Virden, this was referred to Dr. Smith, Dr. Duncan and Mr. O'Brien for answer.

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COUNCIL ON MEDICAL SERVICE PLANS

A letter from the Council on Medical Service of the American Medical Association announcing a meeting in Washington, D. C., on December 4 was announced. It was suggested that Dr. James R. McVay, Kansas City, represent the Association at this meeting.

CANCER SOCIETY LETTER

Mr. O'Brien read a letter from the Cancer Society requesting the Association to send a letter to all members of the Association announcing that "The Cancer Bulletin" will be sent to the members during the coming year. The Bulletin had been approved for distribution by the Association's Committee on Cancer.

BETTER BUSINESS BUREAU

Upon motion of Dr. Virden it was decided to retain membership for the Association in the Better Business Bureau.

TREASURER'S REPORT

Dr. Hyndman presented the report on the finances of the Association and, upon motion, the report was accepted.

BUDGET COMMITTEE

The Chairman appointed the Budget Committee as follows: Dr. Hyndman, chairman; Dr. Virden; Dr. Francka.

A. M. A. ASSESSMENT

Mr. O'Brien reported that 73 per cent of the members of the Association had paid the assessment, the various Councilor Districts showing percentages of 64 for First District; 62 per cent for Second District; 83 per cent for Third District; 66 per cent for Fourth District; 66 per cent for Fifth District; 56 per cent for Sixth District; 84 per cent for Seventh District; 80 per cent for Eighth District; 55 per cent for Ninth District, and 67 per cent for Tenth District.

FIELD SECRETARY'S REPORT

Mr. McIntyre reported on component society and councilor district meetings held since the last Council meeting together with other meetings in which the Association had taken part, such as Committee on Tuberculosis sponsoring a meeting with other groups with the same interests, the Missouri Health Council, American Medical Association's Conference on Physicians and Schools, Missouri Academy of General Practice, Greene County Health Forum, Missouri Hospital Association and appearance of physicians before lay groups. He reported that sixty physicians had located in rural areas recently bringing the total to 351 since the end of the war.

ANNUAL SESSION PROGRAM

Dr. Arneson gave a progress report on the scientific program for the Annual Session, showing that the program is complete with exception of a few details.

SOUND FILMS

Sound films were discussed and it was the concensus that there was a place for them in medical meetings but that they did not in any way take the place of a speaker on a medical subject.

LEGISLATIVE COMMITTEE OF A. M. A.

A letter was read from the Arkansas Association which told of a proposed resolution to be introduced in the House of Delegates of the A. M. A. National legislation as pertains to medicine was discussed but no action was taken.

EDITORIAL BOARD

Dr. Muether reported on The Journal and announced the Editorial Board which the Council had approved. With additions which were suggested by the Council, the personnel of the Board follows: Drs. John P. Ferguson, Springfield; Trawick H. Stubbs and John J. Modlin, Columbia; Victor B. Buhler, A. Lloyd Stockwell, F. Garrett Pipkin, Claude J. Hunt, F. Stanley Morest, H. F. Flanders, Ralph R. Coffey, and Kenneth C. Hollweg, Kansas City; Joseph M. Krebs, H. Ewing Wachter, Robert Elman, B. L. Sinner, Edmund A. Smolik, Cyril M. MacBryde, William A. Knight, Melvin O. Casberg and Robert Moore, St. Louis.

Upon motion of Dr. Virden, the Editorial Board was approved to be subject to yearly appointment by the Editor and Committee on Publication with approval of the Council.

PUBLIC RELATIONS

Dr. Fries gave a progress report on the work of the Committee on Public Policy and Public Relations and urged that Councilors make appointments to the committees and encourage county societies in their districts to make their appointments.

GRIEVANCE COMMITTEES

Dr. Smith told the Council of the plan of several state associations of setting a grievance committee to hear and handle complaints against individual physicians. No action was tken.

COMMUNITY HEALTH LEAGUE

The Community Health League was discussed and the Council continued its approval of the league.

HANDBOOK

Dr. Petersen reported that the Handbook was progressing and would be ready for distribution at the Annual Session.

BUDGET

The following budget was presented by the Budget Committee and on motion of Dr. Hyndman was adopted:

Salaries	$26,800.00
Journal Expense	18,000.00
Postage & Express	600.00
Printing & Stationery	1,800.00
Travel, Executive Sec'y	900.00
Travel, Field Sec'y	1,500.00
Telephone & Telegraph	1,200.00
Office Rent & Light	2 800.00
Meetings & Com. Expense	12,000.00
Defense	500.00
Postgraduate	700.00
Woman's Auxiliary	500.00
Public Relations	4,500.00
Insurance Annuity	950.00
Misc. Gen. Expense	1,500.00
Furniture & Fixtures	250.00
Social Security Tax	350.00
Total	$74,850.00

PUBLIC RELATIONS CONSULTANT

A letter from Mr. Lemoine Skinner proposing that he be retained by the Association at a fee of $250 a month and stipulating what this would cover was presented. After discussion by Drs. Petersen, Virden, Duncan, Thompson, Francka and Bloom, it was decided to employ Mr. Skinner on a retainer basis beginning January 1, 1950.

BLUE CROSS

On motion of Dr. Smith, after presentation by Dr. Thompson, the following resolution was adopted:

Resolved, That the Council of the Missouri State Medical Association go on record as opposing any change in the ratio of representation on the Board of Trustees of the St. Louis Blue Cross Plan which is now constituted to give majority representation to the general public.

COMMITTEE ON MEDICAL ECONOMICS

Dr. Vohs, Chairman, Committee on Medical Economics, reported the action of the committee in approving in principle the contributory agreement of the Associated Medical Care Plans (Blue Shield) and plans to set up a national enrollment agency for the plans.

BY-LAWS OF COUNTY SOCIETIES

A letter from a county medical society regarding the conformity of the society by-laws to the Association by-laws was read. Dr. Petersen pointed out that the Constitution of the Association required that those of county societies conform but that acceptance of members was constitutionally the prerogative of the county society. Upon motion of Dr. Virden, the secretary was instructed to answer the letter with this data.

APPROVAL OF HOSPITALS

A letter was read concerning the changing of the approval of hospitals without prior contact by the Council on Medical Education and Hospitals of the A.M.A. With Dr. Bohrer presiding the following resolution was introduced by Dr. Thompson and passed upon his motion:

Whereas, Hospitals throughout the United States and Hawaii are accepted and certified for intern and residency training, and

Whereas, American Medical Association approval bears great weight in selection by senior medical students in choice of hospital, and

Whereas, The arbitrary and ill-advised methods of the Council on Medical Education and Hospitals in changing the status of said hospitals thus causes many such to be without interns and residents, and

Whereas, The policy lowers the standards of medical and surgical practice in these hospitals, and

Whereas, Such policies are bad for public and professional relations, therefore be it

Resolved, That the Delegates of the Missouri State Medical Association be instructed to cooperate with the delegates from other states so as to cause the Council on Medical Education and Hospitals to cease and desist from its arbitrary policies which are seriously interfering with the previously existing standards of medical procedure, and be it further

Resolved, That a committee of the House of Delegates of the American Medical Association be created to investigate all specialty boards and their relationships to regulation of standards of medical practice.

QUESTIONNAIRE ON SALARIES BY DIVISION OF HEALTH

Dr. Virden presented a letter from Dr. Adams of the Division of Health asking his opinion of the salary which should be drawn in a state hospital by a diplomat of a board. Several members of the Council also had received such a letter. After discussion, and on motion of Dr. Bloom, the chairman was instructed to appoint a committee of four, with each specialty represented, to study this and answer the letter.

MR. J. W. FORISTEL

Mr. J. W. Foristel, of the Washington A.M.A. office, told of the work of that office and answered questions concerning that work and on national legislation

Meeting of January 28, 29

The Council met at the Sheraton Hotel, St. Louis, on January 28 and 29, 1950, with J. W. Thompson, M.D., St. Louis, Chairman, presiding. Those present were Drs. W. F. Francka, Hannibal; J. W. Thompson, St. Louis; Otto W. Koch, Clayton; J. F. Jolley, Mexico; R. W. Kennedy, Marshall; E. C. Virden, Kansas City; W. S. Sewell, Springfield; E. C. Bohrer, West Plains; Frank W. Hall, Cape Girardeau; Wallis Smith, Springfield; W. A. Bloom, Fayette; C. E. Hyndman, St. Louis; H. E. Petersen, St. Joseph; R. E. Schlueter, St. Louis; Howard B. Goodrich, Hannibal; J. R. McVay, Kansas City; A. N. Arneson, St. Louis; Armand Fries, St. Louis; E. C. Ernst, St. Louis; Mr. W. H. Bartleson, Kansas City; Mr. D. E. Caywood, Springfield; Mr. Lemoine Skinner, St. Louis; Mr. Raymond McIntyre, St. Louis; Mr. T. R. O'Brien, St. Louis.

REPORT OF TREASURER

Dr. Hyndman presented the report of the Treasurer which was approved.

REPORT OF FIELD SECRETARY

Mr. McIntyre reported meetings which had taken place since the last Council meeting including a meeting of the Missouri Health Council on November 30 and said that the Council was attempting to interest the forty-seven local councils in the state in the Missouri Health Council. He reported good meetings of societies at Farmington, Chillicothe, Rolla, Higginsville, Springfield, Jefferson City, Lebanon, among others. He reported a meeting of the Missouri Health Council on January 25 at which the Department of Education presented the program and discussed problems which were of common interest such as improved sanitary facilities for schools, more nursing service, and school lunches. The possibility of a liaison committee of the Department of Education, the Division of Health and the Association was discussed in this connection. Mr. McIntyre told of several meetings that will be held soon: Sixth Councilor District on January 31, at Marshall; Second Councilor District on February 16 at Hannibal; Fifth Councilor District at Mexico on March 2. He announced that there would be meetings for interns, residents, and senior medical students in St. Louis on February 15 and in Kansas City on March 1. The Fifth Annual Conference on Rural Health which will be held in Kansas City on February 3 and 4 was discussed and Mr. McIntyre distributed programs of the meeting.

MINERAL AREA COUNTY MEDICAL SOCIETY

Mr. McIntyre presented the requests of the St. Francois-Iron-Madison-Washington-Reynolds County Medical Society and the Ste. Genevieve County Medical Society that the two societies be hyphenated and that the name of the new society be the Mineral Area County Medical Society. Upon motion of Dr. Virden, this hyphenation was approved.

SCHOOL HEALTH PROBLEMS

After discussion of the program at the Missouri Health Council in which the health problems in schools was brought out, upon motion of Dr. Virden it was decided that a conference with Mr. Hubert Wheeler, Commissioner of Education, be requested looking toward cooperation of the Department of Education, the Division of Health and the Association.

INTERNS MEETINGS

Upon motion of Dr. Bloom funds were appropriated for the two dinners to be held for interns, residents and senior medical students.

OPENINGS FOR PRACTICE

Upon motion of Dr. Virden, it was decided to make available to senior medical students information concerning openings for practice in the state.

AUDRAIN HOSPITAL SUIT

Mr. O'Brien said that no date had been set in place of the December 12 date for the hearing on the Audrain Hospital suit.

CLAY COUNTY SECRETARY

A letter from the Clay County Medical Society ask-

ing advice on the employing of an executive secretary was read. It was suggested that Mr. McIntyre talk and advise with them at his first opportunity.

COMMUNITY HEALTH LEAGUE

A meeting of the Community Health League held on January 8 was reported and the work and purposes of the League were discussed by Drs. Virden, Sewell, Smith, Bloom and Mr. O'Brien.

PROGRAM FOR CENTENNIAL SESSION

Dr. Arneson read the scientific program for the 1950 Centennial Session of the Association (which appears in THE JOURNAL). Upon motion of Dr. Virden, Dr. Arneson was thanked for his splendid work in arranging the excellent program.

WOMAN'S AUXILIARY

Mr. O'Brien presented a request from the Woman's Auxiliary of the St. Louis Medical Society for expenses of the coming Annual Session of the Woman's Auxiliary to the Missouri State Medical Association. Upon motion of Dr. Smith, this was granted.

CANCER HOSPITAL SALARIES

A statement from the Veterans Administration giving salaries of physicians was presented and upon motion of Dr. Kennedy, it was voted to send the information contained to the Division of Health and the committee appointed to study this be discharged.

TALKS BY LAY PERSONS

Mr. O'Brien announced that an insurance representative had become interested in presenting the question of national health insurance to the public and was preparing a speech which he will use and make available to lay persons over the state.

BARNARD HOSPITAL

Dr. Ernst presented the situation on Barnard Hospital being transferred to Washington University and asked assistance of the Council. After discussion, it was pointed out that the Council had gone on record some time ago as being opposed to the transfer and recommended that the staff of Barnard Hospital further investigate the transfer.

HEALTH COMMISSIONER

The recent death of Dr. C. F. Adams, Health Commissioner, was announced and the possibility of the Association being of aid to the Governor in a new appointment was discussed. It was decided to write the Governor and offer the assistance of the Association.

COLLECTION OF A. M. A. DUES

Method of collection of the A. M. A. dues was discussed, as well as the classification of members in the A. M. A. as it affects the state membership. It was pointed out that a physician can be a member of the state association without being a member of the A. M. A. Upon motion of Dr. Smith, it was voted that the dues to the A. M. A. be collected in 1950 by the state office rather than by the county societies.

PUBLIC RELATIONS

Dr. Fries reported that the Committee had held a meeting on January 15 and outlined the plan of the Committee to have representation from each Councilor District and each county and that material would be channeled through this means to members of the profession and to the public. Mr. O'Brien announced that Mr. Skinner had been retained by Whitaker and Baxter to do some work for them.

LEGISLATION

Bills before the Congress in which the medical profession is interested were discussed: S. B. 1453, Aid to medical education; S. B. 1411, School health bill; H. R. 6000, which would add total permanent disability benefits to the Social Security act.

MEDICAL EDUCATION

A letter which Dr. Rial Oglevie had written to the Jackson County Medical Society relating to medical care and shortage of doctors, rationalizing the situation and proposing the extended use of present medical schools was read by Dr. Virden. This was discussed but Dr. Virden said that the delegates from Jackson County would work out suitable resolutions from the letter and they would be presented to the House of Delegates. Therefore, no action was taken by the Council.

AWARDS

Dr. Francka reported that the Committee on Awards had received no proposed names for an award for outstanding practitioner in Missouri. After discussion it was voted that there would be no award made for outstanding practitioner but that the lay award be considered.

GRIEVANCE COMMITTEE

The action of the House of Delegates recommending Grievance committees for state associations and the experience of several states that have had such committees was discussed. It was pointed out that this was a method by which difficulties between the patient and physician could, in most cases, be straightened out. Upon motion of Dr. Bloom the following committee was appointed to study the possibility of having a grievance committee and the mechanism and to report back to the Council: Drs. Francka, chairman; Smith, Bohrer, Sewell and Jolley. It was suggested that Mr. Skinner work with the committee.

INTERIM SESSION

At the request of Dr. Schlueter, Dr. Goodrich reported on the Interim Session of the American Medical Association. The delegates to the A. M. A. agreed that that House of Delegates was becoming a more aggressive and able body. In the excellent report, the figures of voluntary health insurance plans were given showing 65 million persons having hospital insurance and 38 million having medical and surgical care insurance, with an increase of between seven and eight million in the last twelve months.

J. W. THOMPSON, Chairman.

J. W. THOMPSON, M.D., St. Louis: The Council met this morning, March 26, and presents the following further report:

The Council again wishes to call to the attention of the delegates and members the 12 point program of the American Medical Association. Many of the objectives of that 12 point program are so similar to the objectives of this Association that it seems worth while to keep them constantly before us.

1. A Federal Department of Health with a secretary who is an M.D. This has been recommended by the A.M.A. since 1884 and is purely a national development.

2. Medical Research. St. Louis University, Washington University and the University of Missouri schools of medicine receive grants from the U. S. P. H. S. and other foundations for research projects. The fact that our state has been honored by the awarding of Nobel and other prizes to many of our outstanding scientists is evidence enough that we have been progressive on this part of the A.M.A. program.

3. Voluntary Insurance. The Blue Cross and Blue Shield plans in our state have succeeded far beyond the hopes of their original sponsors. The report of the Committee on Medical Economics outlines in detail the expansion of these plans and other insurance companies during 1949. The Council urges that methods

be devised for the individual enrollment of subscribers as soon as practical.

A special committee of the Association made a study in 1948 of the territorial boundaries of the Blue Cross-Blue Shield plans in Missouri. A recommendation was made that the St. Louis plans assign additional territory to the Kansas City plans. Because of more pressing matters the Board of the St. Louis Blue Cross Plan was unable to consider such a readjustment. However, it is now in position to reopen negotiations and it is our hope that the changes may be completed in the near future.

4. Medical Care Authority and Consumer Representation. At present the State Division of Health acts as the receiving agent for Federal funds in Missouri.

5. New Facilities. The report of the Committee on Rural Medical Service indicates the expansion of health facilities in the rural areas. Members are urged to inform the public in their communities of the availability of the Hill-Burton funds. These federal grants have been increased and it is only necessary for the local project to secure one half of the estimated cost and the government will pay the remainder.

6. Public Health. The efforts of the Association and the Division of Health have been directed toward the establishment of local county health units where needed. These units with the cooperation of physicians in the areas and the state Division of Health have brought about considerable improvement in this field.

7. Mental Hygiene. The Association has actively supported the efforts of the legislature and the Governors, past and present, to improve conditions in the state mental hospitals. The Committee on Menal Health has worked for the betterment of these institutions. These efforts have resulted in the erection of individual homes for physicians, improved living and financial arrangements for physicians and personnel, expansion and improvements of the buildings and establishment of occupational workshops. It is recommended that the Committee continue its program so that Missouri may eventually become the leading state in this field.

8. Health Education. The Missouri Health Council has now been in existence for more than two years. This agency, organized by the Association with the cooperation of other groups, has assisted in the development of more than 49 local councils. The main objective is to provide health education for the citizens of the state. The report of the Committee on Health and Public Instruction outlines additional activities.

9. Chronic Diseases and the Aged. The present life expectancy of the average American is about 69 years. This increased life expectancy is bringing about a rapid change in our leading causes of death. The leading killers of the past are being gradually eliminated as modern medical care constantly improves. As a result more and more thought is being given to care of the aged. Modern institutions for the care of the chronically ill are urgently needed. The Council recommends that a study be made of the existing facilities and that recommendations be brought to the attention of the next House of Delegates.

10. Veterans Medical Care. Many thousands of Missouri Veterans have been taken care of at government expense through the "home town" plan in effect between the VA and the Association. In addition many thousands have received care in the veterans hospitals in Missouri.

11. Industrial Health. The report of the Committee on Industrial Health indicates the progress that has been made in this important field. Symposia were presented before the students of Washington University and St. Louis University schools of medicine in October 1949.

12. Medical Education. The report of the Committee on Rural Medical Service indicates the worth while results that have been accomplished by the Association in its efforts to provide more physicians for rural areas. In the roport of the Committee on Medical Education and Hospitals, you will find considerable information regarding the Medical School of the University of Missouri.

The question of creating a new Association committee to concern itself with complaints or grievances received from the public was considered by the Council. A special committee of the Council was appointed to study the matter and this study is continuing. For the present, the Council calls attention to the fact that existing committees, in every county society, may effectively and practically handle such matters, having due regard to the interests of the profession and the public.

Mr. Speaker, the next portion of my report of the Council concerns certain resolutions which we wish to introduce.

Resolutions on S. B. 1453

Whereas, The House of Delegates of the American Medical Association at its meeting in Washington, D. C., on December 9, 1949, and the Board of Trustees officially opposed S. B. 1453, and

Whereas, S. B. 1453 provides federal aid to medical education and other forms of health education, and

Whereas, It has passed the Senate and is being considered by the House Committee on Interstate and Foreign Commerce, and,

Whereas, On January 16, 1950, the Board of Trustees of the American Medical Association submitted a list of amendments to this Act, which, if adopted, would correct the undesirable features now contained in the bill, therefore, be it

Resolved, That the House of Delegates oppose this bill in its present form and that members of the Congress be so informed.

Resolution on H. R. 6000

Whereas, The Board of Trustees of the American Medical Association at a meeting in Washington, D C., December 9, 1949, officially opposed several bills pending in the Congress, among them H. R. 6000, and

Whereas, H. R. 6000 amends the Social Security Act to include approximately 11,000,000 more persons, increases the benefits payable to insured persons and their families; and in Section 107, line 6, page 88, provides for compulsory permanent and total disability benefits, and

Whereas, This legislation has passed the House of Representatives and is now being considered by the Senate Committee on Finance, and

Whereas, The Board of Trustees of the American Medical Association presented a statement before the Senate Committee on Finance on February 28, 1950, as follows: "Total and permanent disability is often a condition over which the individual who is disabled and his physician may exercise control. This subjective control which may be exercised by the individual multiplies the opportunity for malingering and actually takes the program out of the insurance category. We oppose any program which places a brake on the incentive of the sick and disabled to desire recovery. To initiate a federal disability program would represent another step toward wholesale nationalization of medical care and the socialization of the practice of medicine. The program as now proposed would not accomplish the entire nationalization of medical care but the inevitable expansion and liberalization of the program which surely would follow makes probable its eventual accomplishment. The steps in liberalization are not hard to visualize——such as payment of benefits to dependents of disabled covered persons, removal of the time lag of six months and substitution of temporary disability benefits, then eventually full cash sickness and disability provisions. We would then have nothing less than a total national compulsory sickness program," therefore be it

Resolved, That the House of Delegates express its opposition to Sec. 107 of H. R. 6000 and that members of the Congress be so informed.

Resolution on S. B. 1411

Whereas, The House of Delegates of the American Medical Association at its meeting in Washington, D. C., on December 9, 1949, and the Board of Trustees officially opposed S. B. 1411, and

Whereas, S. B. 1411 is known as the school health bill, and

Whereas, It has passed the Senate and is now being considered by the House Committee on Interstate and Foreign Commerce, and

Whereas, The House of Delegates of the American Medical Association, took action on the bill as follows: "We recommend that this bill in its present form be opposed. On page 6 of the printed bill, Sec. 6 (a), 1) there are three provisions, A, B and C. A provides for periodic medical and dental examination of school children; B provides that, where indicated, treatment shall be provided 'whenever the parents of such children are unable to provide treatment,' and these sections are acceptable. Section C, which permits schools to provide treatment for *all* school children, is an unwise provision and makes it necessary to oppose S. B. 1411," therefore be it

Resolved, That the House of Delegates oppose this bill in

its present form and that members of the Congress be so informed.

Upon motion, seconded, the referral of committee reports to the Reference Committee on Miscellaneous Affairs and resolutions to the Reference Committee on Resolutions by the Speaker, was approved.

Appointment of Committee on Nominations

The President announced the appointment of the Committee on Nominations as follows:

Robert Mueller, St. Louis, Chairman.
O. Earl Whitsell, St. Joseph.
B. L. Murphy, Hannibal.
C. P. Dyer, St. Louis.
J. L. Washburn, Versailles.
C. B. Davis, Nevada.
R. Lee Hoffmann, Kansas City.
Kenneth Glover, Mount Vernon.
J. H. Summers, Lebanon.
Paul Baldwin, Kennett.

The following resolution was presented by R. Lee Hoffmann, M.D., Kansas City:

WHEREAS, There may be misunderstandings between patients and physicians, and

WHEREAS, In the best interest of the public there should be established by the Missouri State Medical Association a method to receive, investigate and aid in the dissolution of such misunderstandings; therefore be it

Resolved, That this House of Delegates does hereby create and designate a committee that shall have referred to it by the Secretary, for disposition, any and all grievances, complaints and misunderstandings between members of this Association and nonmedical persons about professional services, the charges for professional services or the conduct of a member, and be it further

Resolved, That this committee shall be the President and the four living immediate Past Presidents of the Association, and that each year the President of this Association shall become the new member, following his official induction into office, of the committee succeeding the Past President whose year of presidency is farthest from that year, and be it further

Resolved, That the committee shall elect its chairman each year at the Annual Session, complete records of all proceedings and adopt such rules of procedure, records and regulations as in the opinion of the committee are deemed advisable and expedient in performing the work of the committee, and be it further

Resolved, That there shall be no authority, created or implied, vested in the committee that permits the committee to expel or suspend any member, provided that the committee may refer such information as it may receive to the Secretary of the member's component society for the consideration of the Council of that society, and be it further

Resolved, That all efforts shall be made by the members of the committee to achieve a better understanding between the medical profession and the patients in the interest of maintaining friendly and cordial feelings, and be it further

Resolved, That the Secretary of this Association shall act as Secretary of this committee and that legal counsel shall be retained to serve this committee at all times.

This resolution was referred to the Reference Committee on Resolutions.

The following resolution was presented by Max Goldman, M.D., Kansas City:

WHEREAS, The duties and responsibilities of the Medical Education, Public Welfare and Hospitals, and the Public Education Committees must, of need, increase to meet the constant demand and requests from governmental units and allied medical organizations and assistance and closer cooperation; and to competently fulfill these obligations it is necessary to increase the work of these Committees, and in order to efficiently complete the work, additional facilities and personnel are required in a location where convenient access is available, therefore be it

Resolved, That the House of Delegates of the Missouri State Medical Association, in Annual Session assembled, and the Council of the Missouri State Medical Association be instructed to proceed within the year to establish such an office in the city of Jefferson City, Missouri, and be it further

Resolved, That this office shall be for the purposes of the activities and programs of the Public Education Committee and Medical Education, Public Welfare and Hospital Committee, and be it further

Resolved, That the personnel, duties and objectives of said facilities shall be planned, proposed and outlined by these Committees who shall present their plan for the consideration and approval of the Council, and be it further

Resolved, That the duties of the personnel employed in said office shall be outlined by the Committees by and with the consent of the Council, and be it further

Resolved, That said Committees shall present to the Council within sixty (60) days their recommendations of the program, proposed budget and general outline of the activities of said office for the consideration and action of the Council, and be it further

Resolved, That the approved program be activated within five (5) months after the adoption of this resolution.

This resolution was referred to the Reference Committee on Resolutions.

The following resolution was introduced by A. N. Altringer, M.D., Kansas City:

WHEREAS, The Missouri State Medical Association, its Council, House of Delegates and Committees are often confronted with questions involving legal technicalities that should require the interpretation of an attorney, and,

WHEREAS, The officers and executive employees of the Association are often in need of legal advice concerning problems which arise in the administration of routine duties of the Association, and,

WHEREAS, The successful continuity of the administration of the activities of this organization can best be served by the continuity of knowledge of the organization and its problems, work and previous decisions, therefore be it

Resolved, That the Council of this Association be instructed to employ Legal Counsel to represent the Missouri State Medical Association on a retainer basis in order that the advice, counsel and the recommendations of the Legal Counsel may be available at all times to the Association, its executive bodies and administrative employees.

This resolution was referred to the Reference Committee on Resolutions.

The following resolution was presented by Victor B. Buhler, M.D., Kansas City:

WHEREAS, The population of our country has doubled in the last forty-five years, while the absolute number of practicing physicians has not increased, and

WHEREAS, This situation has resulted from elevation of standards of medical education with elimination of substandard schools, the high cost of founding and maintaining medical schools, and the difficulty of maintaining and recruiting qualified teaching staffs, and

WHEREAS, The expanding demands for medical and health service on the part of the general public, industry, the armed services, and the veterans administration have created unremittingly heavy demands upon the time and energies of practicing physicians, so that few of them can increase their present work load, and

WHEREAS, It would take many years to enlarge existing medical schools, or create new ones, at prohibitive cost, and

WHEREAS, Some existing medical schools may have the physical plant and teaching staff capable of training physicians without sacrifice of standards, by holding sessions for more than one shift per day, now therefore be it

Resolved, That the Council on Medical Education and Hospitals of the American Medical Association investigate, with the approved medical schools of this country, the possibility of training a larger number of qualified physicians at a time in the medical schools by more complete around-the-clock utilization of physical plants and teaching staffs than is the case today.

This resolution was referred to the Reference Committee on Miscellaneous Affairs.

The following resolution was emphasized by J. W. Thompson, M.D., St. Louis, as it appeared in the printed minutes of the Council. The resolution follows:

WHEREAS, Hospitals throughout the United States and Hawaii are accepted and certified for intern and residency training, and

WHEREAS, American Medical Association approval bears great weight in selection by senior medical students in choice of hospitals, and

WHEREAS, The arbitrary and ill-advised methods of the Council on Medical Education and Hospitals in changing the status of said hospitals thus causes many such to be without interns and residents, and

WHEREAS, The policy lowers the standards of medical and surgical practice in these hospitals, and

WHEREAS, Such policies are bad for public and professional relations, therefore be it

Resolved, That the Delegates of the Missouri State Medical Association be instructed to cooperate with the delegates from other states so as to cause the Council on Medical Education and Hospitals to cease and desist from its arbitrary policies which are seriously interfering with the previously existing standards of medical procedure, and be it further

Resolved, That a committee of the House of Delegates of the American Medical Association be created to investigate all specialty boards and their relationships to regulation of standards of medical practice.

Upon motion of Otto W. Koch, M.D., Clayton, it was voted to communicate with Homer L. Kerr, M.D., Crane, Past President, who was unable to be present because of illness.

Upon motion of R. Lee Hoffman, M.D., Kansas City, it was voted to include other Past Presidents who were unable to be present because of illness in the communication.

The House of Delegates recessed until 4:30 p.m. on Monday.

MONDAY, MARCH 27, 1950 —AFTERNOON SESSION

The recessed session of the House of Delegates convened at 4:30 p.m. on Monday, March 27, with F. T. H'Doubler, M.D., Springfield, Speaker, presiding.

C. F. Black, M.D., President of the Indiana State Medical Association, and Mr. Ray Smith, Executive Secretary of the Indiana State Medical Association, were introduced.

Mather Pfeiffenberger, M.D., Alton, Illinois, Delegate from Illinois to the American Medical Association, was introduced.

A. W. Neilson, M.D., St. Louis, Chairman of the Committee on Credentials, reported a quorum present.

W. O. Finney, M.D., Chaffee, gave the report of the Reference Committee on Miscellaneous Affairs:

REPORT OF THE REFERENCE COMMITTEE ON MISCELLANEOUS AFFAIRS

The Committee has studied the reports of the various committees which were referred to this committee and approves them. The Reference Committee moves the adoption of this report.

Upon second, the report was adopted.

O. T. Blanke, M.D., Joplin, serving as secretary for the Reference Committee on Reports of Officers, gave the committee report.

REPORT OF THE REFERENCE COMMITTEE ON REPORTS OF OFFICERS

This Committee has noted the Report of the Secretary and recommends its adoption.

It has heard and has noted the typed copy of the President's Message and offers its congratulations on the accomplishments of the past year.

The Committee has heard and has noted the typed copy of the address by the President-Elect and offers its genuine good wishes for the successful fulfillment of his recommendations.

It recommends that these addresses be published, as is customary, in The Journal of the Missouri State Medical Association.

It has noted the report of the Executive Secretary, together with the addition from the floor of the list of honor members, and recommends its adoption.

The Committee has noted the report of the Treasurer as printed in the March 1950 issue of The Journal and accepts it as correct. It therefore recommends the adoption of his report.

The Committee moves the adoption of the Committee's report.

Upon second, the motion was passed.

Kenneth Glover, M.D., Mount Vernon, gave the report of the Reference Committee on Scientific Exhibits.

REFERENCE COMMITTEE ON SCIENTIFIC EXHIBITS

On the basis of clarification, presentation and practicality for the majority of those attending and visiting the exhibits, the Committee has selected exhibits as follows: No. 1. "Common Control of Diabetes," by the Missouri State Medical Association's Committee on Diabetes; No. 2. "Common Rheumatic Disease," by C. Stewart Gillmor, M.D., Kansas City; No. 3. "Trigeminal Neuralgia," by Robert Dean Woolsey, M.D., St. Louis. The Committee moves the adoption of this report.

Upon second, the report of the Committee was adopted.

Durward G. Hall, M.D., Springfield, gave the report of the Reference Committee on Resolutions as follows:

REPORT OF THE REFERENCE COMMITTEE ON RESOLUTIONS

Mr. Speaker: The Reference Committee on Resolutions appointed by you at the opening session of the 92nd Annual Session of the Missouri State Medical Association and approved by the House of Delegates has been in session since 10:00 a.m. today and has listened to the problems and those who wished to discuss the various resolutions referred. The Committee has endeavored to assume an unbiased position, to hear equally both sides where argument was involved and herewith recommends to the Floor of the House of Delegates such resolutions and recommendations as follows:

No. 1. Resolution on Senate Bill No. 1411. This resolution pertains to the above captioned Senate Bill of the U. S. Senate, is opposed by the Board of Trustees of the American Medical Association, and is known as "the School Health Bill." The House of Delegates of the American Medical Association approved provision A and B of Section 6-(A)1, but disapproved Section C which would permit schools to provide treatment for *all* school children regardless of their ability to pay or consult their family physician.

It is therefore recommended by the Reference Committee on Resolutions that this resolution as submitted by the Council to the House of Delegates at the opening session be approved.

I move the adoption of this report thus far.

Upon second, the motion was adopted.

A second resolution was on U. S. House of Representatives Bill No. 6000.

This bill as offered is opposed by the Board of Trustees of the American Medical Association, in effect amends the U. S. Social Security Act to increase its provisions, and provides for compulsory permanent and total disability benefits. It has passed the U. S. House of Representatives and is now being considered by the Senate Committee on Finance. The Board of Trustees of the American Medical Association in a statement before the Senate Committee on Finance pointed out that total and permanent disability is a condition over which the individual who is disabled and his physician may exercise control, thus creating the opportunity for malingering and actually removing the program from the insurance category. Inasmuch as we oppose any program for placing a brake on the incentive of the sick and disabled to recover and furthermore since the institution of the Federal Disability program would represent another step toward nationalization of medical care and socialization of the practice of medicine, it is therefore recommended that this House of Delegates approve the resolution as submitted in the opening Session.

I move the adoption of the report thus far.

Upon second, the motion was adopted.

Another Resolution submitted at the opening Session of the House by Dr. A. N. Altringer of Jackson County pertains to the retention of legal counsel by the Council of the Missouri State Medical Association for use of the Association as a whole, its executive office, or the House of Delegates and Committees.

The Reference Committee on Resolutions believes it worth while to formalize this authority and sees no way in which it can perfect the resolution or its intent and simply returns to the floor of the House of Delegates this resolution as submitted in the spirit of ratifying that which is presumed to be current practice; and therefore recommends its adoption.

I move the adoption of the report thus far.

Upon second, and following discussion by Drs. Carl F. Vohs, J. W. Thompson, Curtis H. Lohr, C. P. Dyer, R. Emmet Kane and Dr. Hall, the resolution was not adopted.

Another resolution submitted in the opening Session of the House of Delegates in this 92nd Annual Session of the Missouri State Medical Association by Dr. R. Lee

Hoffmann of Jackson County pertains to the establishment of a so-called "Grievance" committee in the interest of further enhancing public relations between our Association and the general public, as currently practiced by the American Medical Association and many of our sister states or commonwealths.

It should be noted at the outset by the House of Delegates that in no place does the word "grievance" occur in the entitlement of the resolution as submitted.

The Reference Committee on Resolutions had long hearings, and even further discussions, concerning this basic idea including the information available to the subcomittee of this Organization's Council, a conference with the Council's Chairman, and much additional information available through the interest and foresight of members of the committee. As members of the House of Delegates will recall from the Council Chairman's report at the opening session, that body, after hearing from its subcommittee in its current meeting and predicated more particularly upon the advice of Mr. Lemoine Skinner, who is retained by the Association to direct our Public Relations program, had decided to delay definite formation of such a committee at the State level pending further experience on the part of the A.M.A. and our sister states who have already initiated this program.

The Reference Committee on Resolutions and those who appeared before it are in basic agreement that some such an arrangement at a State Association level would, in all probability evolve into an appeal board when satisfaction was not gained by complainants who appeared before existing county society committees. All concured that such a committee should be in existence.

The real question at the present time is:

A. Do we not already have sufficient existing committees known as deportment, professional conduct, ethics, or censor committees?, and

B. Whether or not such committees should be publicised at the state level or at the local level and in either event, how vigorously such publicity should be prosecuted at this time?

The Reference Committee on Resolutions after reviewing information available from other states now having "Grievance" Committees has agreed that such committees composed of Presidents or immediate Past Presidents of the Association are not properly chosen, and that generally this committee should be appointed by the President from the Association at large, with the advice of legal counsel and the approval of the State Association Council.

In view of these and other serious considerations, including the fact that the members of the House of Delegates as a general rule did *not* know of the Council action of yesterday morning pertaining to this matter, it is recommended by the Reference Committee on Resolutions that:

a. The resolution as submitted be *not* adopted, but that the Council be instructed through its public relations committee and Council Districts to seek active publicity in appropriate areas concerning county and local organizations now in existence for the adjudication of diversions of opinion between the public and the medical profession;

b. That the Council subcommittee be continued and urged to resolve any present or local statewide obstruction to the establishment of a State Association "Complaint" Committee, and that the Council be instructed to appoint a committee pro-tem for the adjudication of such differences of opinion as may come before it by appeal from the county society levels when it cannot be resolved locally;

c. That the Council be empowered to withhold statewide publicity concerning the State Association "Appeal Committee" until in its judgment no harm would be done locally or generally by such publicity.

I move the adoption of this portion of the report.

Upon second, the motion was passed.

The fifth Resolution referred to the Reference Committee at the opening Session of the House of Delegates in this Convention Assembled was by Dr. Max Goldman of Jackson County, and pertained to the location of a sub-office of the Headquarters of this Association at the State Capitol in Jefferson City, Missouri, for the use of the State Association's Committees dealing with medical education, public welfare and hospitals, and the Committees dealing with education of the public along medical lines, which may now or in the future be in existence.

Your Reference Committee notes that under the present constitution and by-laws, this would affect only the Committee on Medical Education and Hospitals, but possibly the intent of the Resolution was to offer facilities for the present Committee on Public Policy and Public Relations. The Committee has probably spent more time and listened to more arguments, pro and con, on this Resolution than any of the others to date. Obviously, the Association can ill afford to establish separate offices, thus dividing its strength and facilities for the various standing committees of the Association at possible different locations. On the other hand, the need for the committees mentioned above to have library, office, reception, work shop and contact facilities in these days of greater and greater centralized state and federal government interest in health is actually apparent.

The Council and this House of Delegates have currently heard our new Director of Health logically and openly insist on cooperation of organized medicine, if he is to continue to represent us in matters pertaining to health matters in our State. The Chairman of this Reference Committee returned the resolution to this House of Delegates on the closing Session of the 91st Annual Session in Kansas City in 1949, which is a matter of record in our files, with eight carefully worked out comments and four specific recommendations in commenting on the Resolution entitled, "Location of the Missouri State Medical Association Headquarters," wherein it is believed that the principal arguments both pro and con were brought to the Delegates' attention concerning the relocation of the entire headquarters.

These arguments are available and may be heard by the House if desired.

The Reference Committee has information available to this House of Delegates on request, letters from twenty of the twenty-four states of the Union who maintain their State Medical Association headquarters in their respective capitol cities, which indicates without exception their individual feelings of the importance of this liaison. In many instances these communications express wonderment that the Association could function under any other arrangement. However, in some instances the State's principal medical center coincides with the Capitol City, which we all recognize to be different from our situation in Missouri. This data is of March 7, 1949, according to the *Journal* of the A.M.A.

It is the considered opinion, therefore, of the Reference Committee on Resolutions that the present resolution, as submitted, should be *not* approved by the House of Delegates, but that the Council should be empowered to establish such liaison offices, when in its judgment the function of our organization, as a whole, will be thereby enhanced.

It is the further opinion of your Reference Committee that the question of moving the entire headquarters office to the Capitol City of our State is not within the intent or pervue of this resolution and should be considered, if desired, as a separate action of this body.

Upon motion, seconded, this part of the report was adopted.

Upon motion, seconded, the Report of the Reference Committee on Resolutions was adopted as a whole with

the exception of the resolution regarding employment of legal counsel which was defeated by the House.

J. W. Thompson, M.D., St. Louis, reported for the Council.

REPORT OF THE COUNCIL

The Council wishes to present the following amendment to the By-Laws:

Amend Chapter VII, Section 2, page 13, lines 3 and 8, by striking out all of lines 3 and 8, and inserting in lieu thereof the following: "A Committee on Scientific and Postgraduate Work, a Committee on Publication, a Committee on Medical Defense. . . ."

Amend Chapter VII, Section 2, pages 13 and 14, by striking out all of Section 2 and inserting in lieu thereof, the following: "A Committee on Scientific and Postgraduate Work shall determine the character and scope of the scientific proceedings of the Association for each Annual Session, subject to the instructions of the House of Delegates. The Committee shall provide speakers for district society meetings as requested."

Amend Chapter VII, Section 8, page 15, by striking out all of Section 8.

Curtis H. Lohr, M.D., St. Louis, presented the following resolution:

Whereas, The Board of Directors of Group Hospital Service, Inc., approved on March 10, 1950, the request of national labor organizations and industry for a "Comprehensive Hospital Service Plan" which, in addition to hospital care, will also provide unlimited coverage for "anesthesia, x-ray, diagnotic laboratory work and other professional services" and,

Whereas, The Council of the St. Louis Medical Society at a special meeting on March 24, 1950, recorded its disapproval of this proposed "Comprehensive Hospital Service Plan" and,

Whereas, The proposed new contract combines hospital service with the services of individual physicians and thereby makes the hospital itself a practitioner of medicine, and

Whereas, This type of practice is not only unethical but also has been declared illegal by various state Supreme Courts, and

Whereas, The operation of the proposed plan will inevitably result in still further congestion of our already overcrowded hospitals by the demands of the beneficiaries of the proposed plan for admission to hospitals for the purpose of "X-ray, pathology, anesthesia, and other professional services" although most of these services do not require admission to hospitals, and

Whereas, The desired coverage for such professional services is already available on a low-cost, prepayment basis under the existing Missouri Medical Service Plan, and

Whereas, The proposed unrestricted coverage for "x-ray, laboratory, anesthesia and other professional services" under the new "Comprehensive Hospital Service Plan" will compel Group Hospital Service, Inc., to increase its premium rates substantially and without the benefit of competent actuarial data upon which the new rate structure can be based, and

Whereas, A rate schedule which is based on guess work is apt to be either too high which will price Group Hospital Service out of business or too low which will threaten the solvency and the very existence of Group Hospital Service, Inc., therefore, be it

Resolved, That the Missouri State Medical Association request the Board of Directors of Group Hospital Service, Inc., to reconsider and to rescind its action of March 10, 1950, to expand its present hospital service contract by the addition of medical services as requested by national labor organizations and industry, and be it further

Resolved, That the availability of low-cost, prepaid coverage for medical and hospital services by the existing separate "Blue Cross" and "Blue Shield" contracts be called to the attention of the Board of Directors of Group Hospital Service, Inc., and the various labor and management groups concerned with the request that the existing, separate plans be given further study and trial by these organizations before engaging in a new social and economic experiment which, by violating the sound and basic principles upon which the impressive development and services of the existing, separate hospital and medical service plans are based, would threaten the rights and assets created by their present membership and which would jeopardize the solvency and the very existence of Group Hospital Service, Inc., and the Missouri Medical Service Plan.

This resolution was referred to the Reference Committee on Resolutions.

Ralph E. Duncan, M.D., Kansas City, presented the following resolution:

Whereas, The Constitution and By-Laws of this Association, under which we now function, require a two thirds vote of the Delegates present and voting at any Annual Session to amend the Constitution, provided that such amendment shall have been presented in open meeting at the previous Annual Session, and that it shall have been published twice during the year in The Journal of this Association, or sent officially to each component society at least two months before the meeting at which final action is to be taken, and

Whereas, This body has at least by implication previously concurred on a Charter that will eventually replace the present Constitution, and

Whereas, It is necessary to bring this Charter before the Association again, in order that additional time will not be lost by legal involvement with which most of us are not familiar, therefore be it

Resolved, That the following Charter be received by this House in Opening Meeting at this Annual Session, be published twice during this year, and be brought to this House of Delegates at its next or 93rd Annual Session for its final action.

Charter

Article I

This corporation, located in the City of St. Louis, State of Missouri, shall be known by the name and style of the Missouri State Medical Association, and by such name shall have the right to contract and be contracted with, to plead and implead, to sue and be sued, and shall have the right to acquire, own, hold, mortgage and dispose of such real and personal properties as shall be necessary for the proper maintenance and conduct of its affairs.

Article II

The purposes of this organization are to bring into compact organization the entire Medical Profession of the State of Missouri, with a view of the extension of medical knowledge and the advancement of medical science; to promote and elevate the standards of medical education, and the enactment and enforcement of just medical and public health laws; shall encourage friendly intercourse among physicians, enjoin and sustain measures of interest and advantage to the public and the medical profession; and to promote science, knowledge and skill among the medical profession.

Article III

This Association shall have the right to enact By-Laws providing for the government of the Association.

Dr. Duncan moved that the resolution including the Charter be received and lay on the table for a year. The motion was seconded.

This was discussed by Drs. R. Emmet Kane, St. Louis; Dr. Duncan; R. E. Breuer, Newburg; J. W. Thompson, St. Louis. Dr. Kane brought out the necessity of going into court to change the charter which this would require. He also stated that he had obtained copies of the present charter as it appears on file in the office of the Circuit Court in St. Louis and that because of two reports of *Amicus Curiae*, it was not certain that the presently accepted charter was the one that was in the records of the Secretary of State. He advised strongly that more thorough investigation of the present status of the charter be made and that further study of the question be undertaken before any action, even a delayed action for the year, be taken by the House of Delegates.

Upon question being called for, the motion to receive the resolution and Charter lost.

Upon motion of A. R. McComas, M.D., Sturgeon, seconded, Dr. Kane was requested to continue his study of the present status of the Charter.

Carl R. Ferris, M.D., Kansas City: Mr. Speaker on behalf of the entire delegation from the Seventh Councilor District, Jackson County, I issue a most cordial invitation for the next Annual Session, the 93rd Session in 1951, to be held in Kansas City.

Upon motion, duly seconded, the invitation to meet in Kansas City in 1951 was accepted.

Upon motion, duly seconded, the House of Delegates adjourned.

WEDNESDAY, MARCH 29, 1950 —AFTERNOON SESSION

The House of Delegates convened at 1:30 p. m., March 29, with the Speaker, F. T. H'Doubler, M.D., Springfield, presiding.

The Committee on Credentials reported a quorum present.

The reading of the minutes of the previous meeting, upon motion duly seconded, was dispensed with by vote.

The report of the Committee on Nominations was presented by Robert Mueller, M.D., St. Louis, as follows:

REPORT OF THE COMMITTEE ON NOMINATIONS

For Vice Presidents: J. H. Summers, M.D., Lebanon; Joel W. Hardesty, M.D., Hannibal; Carter W. Luter, M.D., Butler.

For Delegates to the American Medical Association: For Delegate, W. L. Allee, M.D., Eldon; alternate, Paul Baldwin, M.D., Kennett. Delegate, Howard B. Goodrich, M.D., Hannibal; alternate, Vincent T. Williams, M.D., Kansas City.

For Speaker of the House of Delegates, F. T. H'Doubler, M.D., Springfield; Vice Speaker, Victor E. Scherman, M.D., St. Louis.

On motion, duly seconded, these officers were declared elected.

NOMINATION FOR PRESIDENT-ELECT

R. Lee Hoffmann, M.D., Kansas City, nominated C. Edgar Virden, M.D., Kansas City, for President-Elect.

Upon motion of Durward Hall, M.D., Springfield, the Secretary was instructed to cast the unanimous ballot of the House of Delegates for Dr. C. Edgar Virden, Kansas City, for President-Elect. The Secretary cast the unanimous ballot of the House of Delegates for Dr. Virden for President-Elect for the ensuing year and the Speaker declared Dr. Virden so elected.

The Secretary reported the results of the election of Councilors as follows:

1st District—Donald M. Dowell, M.D., Chillicothe.
3rd District—J. W. Thompson, M.D., St. Louis.
5th District—J. F. Jolley, M.D., Mexico.
7th District—Victor B. Buhler, M.D., Kansas City.
9th District—E. C. Bohrer, M.D., West Plains.

Installation of the President

William A. Bloom, M.D., Fayette, was installed as President of the Association.

The following appointments to committees to fill expired terms were announced by Dr. Bloom:

Public Policy and Public Relations: Armand D. Fries, St. Louis, Chairman; John Growdon, Kansas City; J. W. Allee, Columbia.

Medical Defense: C. E. Hyndman, St. Louis, Chairman; Roland S. Kieffer, St. Louis; James H. O'Neill, Kansas City.

Medical Education and Hospitals: John S. Knight, Kansas City, Chairman; Trawick Stubbs, Columbia; R. M. S. Barrett, St. Louis.

Cancer: E. C. Ernst, St. Louis, Chairman; Associate Member, Claude J. Hunt, Kansas City.

Medical Economics: G. A. Aiken, Marshall, Chairman; Bernard Sinner, St. Louis.

Mental Health: Frank Grogan, St. Louis, Chairman; Paul Hines, Kansas City; Ernest Parsons, St. Louis.

Maternal Welfare: E. Lee Dorsett, St. Louis, Chairman; E. E. Wadlow, Kansas City; K. E. Cox, Kansas City.

Infant Care: G. V. Herrman, Kansas City, Chairman; H. E. Petersen, St. Joseph; Associate Members, Joseph C. Jaudon, St. Louis; Daniel B. Landau, Hannibal.

Health and Public Instruction: A. W. McAlester, III, Kansas City, Chairman; Claude J. Hunt, Kansas City.

Constitution and By-Laws: W. L. Allee, Eldon, Chairman; B. Landis Elliott, Kansas City; Curtis H. Lohr, St. Louis.

Fractures: D. L. Yancey, Springfield, Chairman; W. R. Bohne, St. Louis; Fred Reynolds, St. Louis; Associate Members, Jacob Kulowski, St. Joseph; B. L. Murphy, Hannibal.

Conservation of Eyesight: C. Souter Smith, Springfield, Chairman; A. N. Lemoine, Kansas City; H. B. Stauffer, Jefferson City; Associate Members, W. L. Post, Joplin; Philip Luedde, St. Louis; John McLeod, Kansas City; G. J. Tygett, Cape Girardeau; S. L. Freeman, Kirksville; C. H. Brady, Sedalia; E. D. Tenaglia, St. Louis; Albert Hanser, St. Louis; George A. Hornback, Hannibal.

Control of Venereal Disease: A. W. Neilson, St. Louis, Chairman; James C. Cofer, Kennett; Charles C. Dennie, Kansas City.

Industrial Health: V. T. Williams, Kansas City, Chairman; E. M. Fessenden, Springfield; Associate Members, R. Emmet Kelly, St. Louis; H. M. Roebber, Bonne Terre; Vencel Hollo, St. Louis.

Physical Medicine: F. G. Pipkin, Kansas City, Chairman; Emmet Settle, Rock Port; Luke A. Knese, St. Louis; Associate Member, M. P. Leech, Fayette.

Tuberculosis: E. E. Glenn, Springfield, Chairman; L. E. Wood, Kansas City; J. L. Mudd, St. Louis; Paul Murphy, St. Louis; C. A. Brasher, Mount Vernon; W. P. McDonald, St. Joseph; I. J. Flance, St. Louis; F. E. MacInnis, Kansas City; H. L. Greene, Hannibal.

Study of Cardiac Diseases: Glenn Hendren, Liberty, Chairman; E. Lee Shrader, St. Louis; Associate Members, H. W. Carle, St. Joseph; J. W. Fleming, Moberly; C. B. Davis, Nevada; W. I. Park, Springfield; Arthur Strauss, St. Louis.

Rural Medical Service: R. W. Kennedy, Marshall, Chairman; A. E. Spelman, Smithville; W. A. Broyles, Bethany; W. J. Shaw, Fayette; R. B. Wray, Nevada; Martin M. Hart, Salem; A. S. Bristow, Princeton.

Anesthesiology: H. J. Freiheit, St. Louis, Chairman.

Diabetes: W. H. Olmsted, St. Louis, Chairman; Lucien W. Ide, St. Joseph.

SPEAKER: The next order of business is installation of officers, councilors and committee members. Will all newly elected officers, councilors and committee members come forward and remain standing?

W. A. BLOOM, M.D., Fayette: At this point in our ceremony today, we approach a phase which is of utmost importance and solemnity, the induction of new officers. Twice blest is he who merits, by your actions, the confidence and esteem of his colleagues. First, they know he will serve selflessly in the interests of all for a common cause; second, he will act, at all times and on all occasions, as a chosen steward of the responsibilities entrusted to his care. Twice cursed is he who fails in his trust. First, as he dissipates his opportunities to serve faithfully and, moreover, as he does not function to the best of his abilities, the expressed faith of his colleagues suffers an irreparable blow; second, his own inner conscience remains unshakable with him always to remind him: "Thou hast failed, thou wert tried and thou wert found wanting." Therefore, I charge each and every one of you with the duties and responsibilities proscribed to your office. I charge you to execute these fully, faithfully and to the best of your ability. I charge you not to be found wanting at the end of your tenure of office. If you abuse these charges, the most elevated office in our power to bestow on you is but mere trappings and empty investitures. Yours, and ours, is the noblest, the greatest of all the great professions. You are the builders in this ever growing monument, this edifice which will stand the acid test of time. I charge you to face yourself daily, and ask: "Is this my best?" And if this ye shall do, ye shall have built well indeed. Yes, far beyond our times ye shall have built, and forevermore shall your name be acclaimed and respected. These things, gentlemen, I charge you.

Gentlemen, do you fully realize the duties, the responsibilities and the effort—the amount of work, of brain and muscle—involved in your assuming these offices? Do you promise faithfully to carry out to the

best of your ability these duties and responsibilities of your offices?

The assembled officers answered, "We do."

Dr. Bloom: Gentlemen, will you raise your right hand and place your left (I will ask Dr. Virden to do that) on this the Holy Bible and repeat after me?

"I (stating name) do hereby publicly affirm my belief in the principles of our organization and furthermore do hereby publicly promise to carry out to the best of my ability all of the duties, responsibilities and the other opportunities afforded me by this office to which you have elected me, so help me God."

Speaker: The next order of business is Unfinished Business.

The report of the Reference Committee on Constitution and By-Laws was given by W. L. Allee, M.D., Eldon, as follows:

REPORT OF THE REFERENCE COMMITTEE ON CONSTITUTION AND BY-LAWS

The Council offered the following amendment to the By-Laws:

Amend Chapter VII, Section 1, page 13, lines 3 and 8 by striking out all of lines 3 and 8 and inserting in lieu thereof the following: "A Committee on Scientific and Postgraduate Work," so that the Section when amended, will read, "A Committee on Scientific and Postgraduate Work, A Committee on Publication, a Committee on Medical Defense . . ."

Amend Chapter VII, Section 2, pages 13 and 14, by striking out all of Section 2, and inserting in lieu thereof, the following: "A Committee on Scientific and Postgraduate Work shall determine the character and scope of the scientific proceedings of the Association for each Annual Session, subject to the instructions of the House of Delegates. The Committee shall provide speakers for district society meetings as requested."

Amend Chapter VII, Section 8, page 15, by striking out all of Section 8.

I understand that this was offered on the recommendation of these two committees. The Committee moves the adoption of this amendment to the By-laws.

Upon second, the motion carried.

The report of the Reference Committee on Resolutions was given by Durward G. Hall, M.D., Springfield, as follows:

REPORT OF THE REFERENCE COMMITTEE ON RESOLUTIONS

Mr. Speaker, The House will recall the resolution submitted by the St. Louis Delegation at the Recessed Session on Monday, March 27, 1950, regarding the recent action of the Board of Directors of St. Louis Group Hospital Service, Incorporated, at the request of Labor organizations for a "Comprehensive Hospital Plan" with the addition of unlimited coverage for "Anesthesia. X-Ray, Diagnostic Laboratory work and other professional services." This was referred to your Reference Committee on Resolutions.

In addition, the Standing Committee on Anesthesiology, as an addendum to its printed report, has submitted a resolution condemning the recent action of the Board of Directors of Group Hospital Service, Incorporated. Undoubtedly, other specialty groups within the Association, such as Radiologists and Pathologists, will feel constrained to act similarly, when the recent action of Group Hospital Service, Incorporated, on March 10, 1950 is generally known.

In the interest of efficiency the Secretary has asked that the reference Committee on Resolutions combine the two above resolutions and bring its recommendation for both to the floor of the House in this Session. Your committee concurring, such action is taken herewith.

The Reference Committee on Resolutions, considering this unprecedented action by the Board of Directors of Group Hospital Service, as an infringement upon the perogatives of the members of this Association, as suicidal to its own future economic well-being, and expectancy of expansion; as well as a betrayal of trust of

(a) our organization, which was instrumental in starting the Blue Cross program and indispensable in its support;

(b) of prior investors and its member hospitals. Furthermore, it inevitably will require an increase in Group Hospital Service membership dues in order to meet these additional demands and will defeat the purpose of a low cost hospital plan. It would be much better for the "Board" of Group Hospital Service to liberalize the present benefits.

This committee is unanimous and staunch in its belief that no organization, such as Group Hospital Service, the Unions, or any other governmental agency should usurp the prerogative of entering into contracts which affect the patent rights and privileges of the members of the medical profession. Similarly, contracts that place hospitals in the practice of medicine, thus necessitating the subservience of the members of the Medical Profession, is beyond the right of such organizations. Such action on the part of the intermediate hospital is not only unethical, but has been declared illegal by various State Supreme Courts.

The Council of the St. Louis Medical Society, in a special meeting, has recorded its disapproval of this "Comprehensive Hospital Service Plan," as has this Association's Standing Committee on Anesthesiology. This Association and the American Medical Association are also on record as holding that the professional services of individual member physicians in the field of Anesthesia, Radiology and Pathology should be maintained separate and apart from hospital services. This Reference Committee need not remind the members here assembled that the addition of the phrase, "other professional services," smacks directly of infiltration within the fringe of individual right of medical practice and must not be allowed.

The operation of the proposed plan will inevitably result in still further congestion of our already over crowded hospitals by the demands of the beneficiaries of the proposed plan for admission to hospitals for the purpose of "X-Ray Pathology, Anesthesia, and other professional services," although most of these services do not require admission to hospitals, and the desired coverage for such professional services is already available on a low-cost, prepayment basis under the existing Missouri Medical Service plan.

In view of these findings your Reference Committee recommends:

A. The Resolution duly submitted by the St. Louis delegation at the Recessed Session of this House of Delegates be approved, and that such approved resolution be immediately and forcefully prosecuted by all means available to this association, including individual members, the Executive Office, and the Council itself;

B. That the report of action taken and results obtained by the Executive Office and the Council be publicized to the memberships at large at the earliest possible date through The Journal of this Association;

C. That in addition to the matter being prosecuted with the Board of Directors of Group Hospital Service, Incorporated, as directed in the resolution, Missouri Medical Service of St. Louis, Kansas City Blue Cross and Blue Shield and the National organization of Blue Cross, the American Hospital Association and the American Medical Association, and the various medical specialty organizations in the three fields directly involved be apprised of the action of this Association.

D. That Group Hospital Service of St. Louis be urged to advise its member hospitals of this *action*, and what is hoped will be their favorable action, without delay.

Mr. Speaker, I move the adoption of both this resolution and this report.

After second, this was discussed by Drs. Curtis H. Lohr, Robert Mueller, Durward G. Hall, Charles L. Klenk, Victor B. Buhler, Llewellyn Sale and R. E. Schlueter.

Upon vote, the report was adopted.

DURWARD G. HALL, M.D., Springfield: Through inadvertant error in referring resolutions to your Reference Committee, a resolution presented by the Council on the opening day of this Session concerning U. S. Senate Bill 1453 failed to reach your Committee until today.

The House will recall that this bill provides federal aid to medical education and other forms of health education. It is being considered by the House Committee on Interstate and Foreign Commerce at this time.

The board of Trustees of the American Medical Association has submitted a list of amendments to the original bill which, if adopted, would correct the undesirable features; but without which we all would wish to oppose the original bill. Inasmuch as the resolution presented recommended that this House of Delegates go on record as opposing this bill in its present form, this action is recommended by your Committee, with the proviso that, if amended as recommended by the American Medical Association, such objection would be withdrawn.

Mr. Speaker, I move the adoption of this portion of the report.

Upon second, this was adopted.

The report of the Reference Committee on Medical Education and Public Welfare was given by R. C. Haynes, M.D., Marshall, as follows:

REPORT OF THE REFERENCE COMMITTEE ON MEDICAL EDUCATION AND PUBLIC WELFARE

The Committee was asked to report on the resolution on acceleration of medical education.

The Committee, in the study of this problem, has found that according to recent surveys, the number of physicians, in the last ten years, has increased about 14 per cent, while the population has increased only 8 per cent.

The United States has one of the highest physician-patient ratios of any country in the world. The Committee feels the problem is not primarily numbers, but distribution.

The training of more physicians by an accelerated around the clock program, would not only be impractical, but impossible, because of the shortage of well trained teachers to staff such a program—the clinical facilities for adequate teaching and training would be unavailable at night.

Therefore the Committee, because of the stated reasons, moves this resolution be not adopted.

Upon motion, duly seconded, the resolution was not adopted.

The report of the Reference Committee on Technical Exhibits was given by Victor B. Burler, M.D., Kansas City, as follows:

REPORT OF THE REFERENCE COMMITTEE ON TECHNICAL EXHIBITS

The Committee on Technical Exhibits composed of Drs. B. L. Murphy, Victor B. Buhler and John J. Killion, awarded first place to V. Mueller & Company, Booth No. 5; second place to A. S. Aloe Company, Booth No. 43; third place to Hamilton-Schmidt Surgical Company, Booth No. 40.

Upon motion, duly seconded, the report was adopted.

SPEAKER: Since the change in the By-laws concerning the Committee on Scientific and Postgraduate Work was adopted, I will ask Dr. Bloom to make the appointments to that committee.

Dr. Bloom made the following appointments on the Committee on Scientific and Postgraduate Work: Victor B. Buhler, Kansas City, Chairman; H. E. Petersen, St. Joseph; Guy D. Callaway, Springfield; A. N. Arneson, St. Louis; M. Pinson Neal, Columbia; Associate Members, D. L. Sexton, St. Louis; Carl R. Ferris, Kansas City; Glenn M. Hendren, Liberty; Roland Klemme, St. Louis; Kenneth Glover, Mount Vernon; J. Grey Jones, St. Louis; Marvin T. Haw, Bonne Terre.

Upon unanimous consent of the House of Delegates the following resolution was presented by A. S. Bristow, M.D., Princeton:

WHEREAS, Buford G. Hamilton, M.D., Director of Health, has presented to the Missouri State Medical Association, through the Council, a recommended program for the Medical care of adults and children of the State of Missouri who are receiving financial aid and other assistance from governmental and private agencies, and

WHEREAS, The Councilors of each Councilor District will be asked to cooperate and secure the assistance of the members of the Missouri State Medical Association to successfully achieve the objectives of this program in such places where adequate programs for the care of the indigent sick do not already exist, therefore be it

Resolved, That the House of Delegates of the Missouri State Medical Association congratulates Buford G. Hamilton, M.D., State Health Director, for recommending, planning and activating a plan for the medical care of the people of Missouri who are receiving assistance from established agencies, and be it further

Resolved, That the program, as presented for the consideration of the Council of this Association, be approved and each member of this Association be urged to give it his support and aid, and be it further

Resolved, That the Publication Committee and the Editor of The JOURNAL be asked to cooperate with Dr. Hamilton by publishing in The JOURNAL material concerning the program which he may submit from time to time, and be it further

Resolved, That a copy of this resolution be sent to Governor Smith.

Upon motion, duly seconded, the resolution was adopted.

Upon unanimous consent of the House of Delegates, the following resolution was presented by Donald M. Dowell, M.D., Chillicothe:

WHEREAS, our esteemed and much admired colleague, R. Emmett Kane, M.D., is kept from being with us this afternoon because of accidental injury, therefore be it

Resolved, That the House of Delegates of the Missouri State Medical Association expresses its regrets and sympathy and its wishes for his speedy recovery, and be it further

Resolved, That this resolution be presented to Dr. Kane and that flowers be sent to him.

Upon motion, duly seconded, the House of Delegates adjourned *sine die*.

MISSOURI STATE MEDICAL ASSOCIATION REGISTRATION AT NINETY-SECOND ANNUAL SESSION

St. Louis, Missouri
March 26, 27, 28, 29, 1950

First Councilor District—37

Atwood, J. Morris, Carrollton
Bauman, Henry C., Maryville
Bloomer, G. T., St. Joseph
Bristow, A. S., Princeton
Broyles, W. A., Bethany
Carle, H. W. St. Joseph
Collier, A., Chillicothe
Conrad, Joseph, Chillicothe
Dawson, Lerton V., Excelsior Springs
Dowell, Donald M., Chillicothe
Durham, S. L., Dearborn
Fisher, Joseph L., St. Joseph
Forgrave, Paul, St. Joseph
Gale, Joseph F., Chillicothe
Goodson, W. H. Liberty
Herman, A. I., St. Joseph
Imes, E. D., Maryville
Knepper, P. A., St. Joseph
Masterson, M. L., Richmond
Matteson, Frank B., Grant City
McCracken, Samuel R., Excelsior Springs
McDonald, Wilbur P., St. Joseph
Mundy, H. F., St. Joseph
Musgrave, P. W., Fairfax
Nixon, Edward E., Gallatin
Peterson, H. E., St. Joseph
Pickett, C. P., Princeton
Platz, John H., Carrollton
Potter, Thompson E., St. Joseph.
Reed, Carl, H., Carrollton
Schroeder, S. O., Liberty
Senor, S. E., St. Joseph
Smith, Clifton, St. Joseph
Vandiver, V. D., Chillicothe
Wadlow, E. E., St. Joseph
Whitsell, O. Earl, St. Joseph
Wilson, Fred K., Winston

Second Councilor District—29

Andrae, Robert L., Louisiana
Bridges, J. R., Kahoka

Burns, Francis R., Hannibal
Chilton, J. C., Hannibal
Cohrs, Clarence C., Moberly
Dixon, John R., Brookfield
English, Milton T., Jr., Kirksville
Fleming, Thos. S., Moberly
Fleming, J. W., Jr., Moberly
Francka, W. F., Hannibal
Freeman, Spencer L., Kirksville
Gashwiler, J. S., Novinger
Goodrich, Howard B., Hannibal
Gronoway, T. P., Macon
Greene, Harry L., Hannibal
Grim, George E., Kirksville
Hardesty, Joel W., Hannibal
Herrington, W., Green City
Jennings, P. W., Canton
Kibbe, John H., Monroe City
Knapp, M. Robert, LaPlata
Landau, Daniel B., Hannibal
Lanning, Robert J., Hannibal
Murphy, B. L., Hannibal
Reichman, John J., Hannibal
Roller, M. J., Hannibal
Rowlette, A. P., Moberly
Smith, W. J., Hannibal
Wilcoxen, W. B., Bowling Green

Third Councilor District—465

Abel, Oliver Jr., St. Louis
Abell, Walter E., St. Louis
Adler, Bernard C., St. Louis
Alden, Arthur M., St. Louis
Allen, Duff, St. Louis
Allen, Henry C., Clayton
Allen, Hollis N., St. Louis
Althans, Carl, St. Louis
Althaus, Carl J., St. Louis
Altheide, J. P., St. Louis
Anstey, George, St. Louis
Anthony, Dallas D., St. Louis
Arneson, A. N., St. Louis
Ayars, Treston R., St. Louis
Banet, S. R., St. Louis
Barker, Jesse W., St. Louis
Barrett, R. M. S., Clayton
Bartlett, Robert, St. Louis
Bartlett, Willard, Jr., St. Louis
Becker, Edward J., St. Louis
Becker, George H., St. Louis
Beckette, Samuel S., St. Louis
Beem, John R., St. Louis
Beisbarth, Carl, St. Louis
Benincasa, A. V., St. Louis
Berard, Louis N., St. Louis
Berg, Ralph, St. Louis
Bergman, Hugo F., St. Louis
Bettonville, Paul J., St. Louis
Bieri, Earl, St. Louis
Black, W. D., St. Louis
Bohnr, W. R., St. Louis
Bohrer, Harry C., St. Louis
Bondurant, B. H., St. Louis
Bowerman, H. H., St. Louis
Bowersox, W. A., St. Louis
Boyd, Arthur M., St. Louis
Bremser, H. L., St. Louis
Brockelmann, Erich, St. Louis
Brockelmann, Emmy, St. Louis
Bromberg, Leon, St. Louis
Broun, G. O., St. Louis
Brown, Seymour, St. Louis
Bublis, N. J., St. Louis
Buddy, E. P., St. Louis
Burford, C. E., St. Louis
Burford, E. H., St. Louis
Burns, F. J., St. Louis
Burst, Emil, A., St. Louis
Busch, Anthony K., St. Louis
Cadwell, Paul M., St. Louis
Calkins, D., St. Louis
Cameron, Solon, St. Louis
Campbell, Cecil S., St. Louis
Campos, F. J., St. Louis
Carrier, John A., St. Louis
Carroll, George A., St. Louis
Casberg, Melvin A., St. Louis
Cassidy, Leslie D., St. Louis
Cason, Elbert H., St. Louis
Charnas, Raymond M., St. Louis
Conrad, A. H., St. Louis
Cook, James I., St. Louis
Cook, Malcom M., St. Louis
Costa, Dominic V., St. Louis
Costello, Cyril, St. Louis
Crawford, Katherine J., Clayton
Creane, John C., St. Louis
Crider, Russell J., St. Charles
Dalton, Arthur R., St. Louis
Danis, Peter G., St. Louis
Day, Anthony B., St. Louis
Devine, John B., St. Louis
Dorsett, E. Lee, St. Louis
Drake, T. G., St. Louis
Dripps, Roy C., St. Louis
Durand, Benjamin, St. Louis
Earp, Ralph K., St. Louis
Eber, Carl T., St. Louis
Eckert, Charles, St. Louis
Echterhoff, H. R., St. Louis
Edwards, E. D., St. Louis
Edwards, Joseph C., St. Louis
Eisele, Matthew B., St. Louis
Elman, Robert, St. Louis
Elmer, Warren P., St. Louis
Engleman, Reinhold, Rome, Ga.
Engman, M. F., Jr. St. Louis
Epp, George J., St. Louis
Ernst, Edwin C., St. Louis
Eversoll, Norton J., St. Louis
Eyermann, C. H., St. Louis
Falk, O. P. J., St. Louis
Feldman, David, St. Louis
Fessenden, E. M., Springfield
Fischel, Walter, St. Louis
Fisher, A. O., St. Louis
Fitzgerald, Leo, University City
Fleishman, Alfred, St. Louis
Funsch, E. C., St. Louis
Forsen, James A., St. Louis
Forti, John J., St. Louis
Franknel, Sol I., St. Louis
Franklin, Max S.,
Freedman, Harold, St. Louis
Freund, N. M., St. Louis
Freund, Samuel J., St. Louis
Fries, Armand D., St. Louis
Friskel, Arthur K., St. Louis
Gafney, George T., St. Louis
Gans, Frederick A., St. Louis
Gansloser, W. M., St. Louis
Glaze, Kenneth F., St. Louis
Glenn, Joseph E., St. Louis
Godfrey, Geo. B., St. Louis
Goebel, Joan, St. Louis
Goldfarb, Alvin, St. Louis
Goldman, Alfred, St. Louis
Gradwohl, R. B. H., St. Louis
Graneto, Jos. A., St. Louis
Graul, Elmer G., St. Louis
Grogan, F. M., Webster Groves
Grueb, Paul M., St. Louis
Grunow, Otto, H., St. Louis
Guccione, J. B., St. Louis
Gulick, C. R., St. Louis
Gundelach, C. A., St. Louis
Gundlach, Arthur, St. Louis
Gunn, Walter T., St. Louis
Hagebusch, O. E., St. Louis
Hager, Victor K., St. Louis
Hall, Lee A., Clayton
Hall, Robert, St. Louis
Hamilton, E. G., St. Louis
Hansel, French K., St. Louis
Hanser, S. Albert, St. Louis
Hanser, Theo. H., St. Louis
Harrison, Lee B., St. Louis
Hartnett, D. C., St. Louis
Hartnett, Leo J., St. Louis
Hartwig, John A., St. Louis
Hassett, Henry A., St. Louis
Heinrichs, J. C., St. Louis
Hennerich, Walter E., St. Louis
Henschel, Eugene V., St. Louis
Henske, A. C., St. Louis
Herdner, R. L., St. Louis
Hewitt, Walter R., University City
Heyer, O. C., St. Louis
Hickey, Robert F., St. Louis
Hines, A. A., St. Louis
Hines, Paul, Kansas City
Hobart, Carl, St. Louis
Hoefer, Walter H. V., St. Louis
Hofstatter, L., St. Louis
Holdenreid, Wm. E., St. Louis
Hollo, V. W., St. Louis
Hosto, Leland E., Clayton
Hrdlicka, Victor, St. Louis
Hummel, A. J., St. Louis
Hutton, J. Louis, St. Louis
Hyman, Anna, St. Louis
Hyndman, C. E., St. Louis
Javaux, Everett J., Clayton
Jean, J. T., St. Louis
Jensen, J. Ernest, St. Louis
Jesgar, William, St. Louis
Johnson, Warren C., St. Louis
Jolly, Benjamin M., Brentwood
Jones, Andrew B., St. Louis
Jones, Otey S., St. Louis
Jones, Richard, St. Louis
Jones, Vincent L., St. Louis
Jorstad, L. H., St. Louis
Joseph, Donald J., St. Louis
Kane, R. Emmet, St. Louis
Kaskie, Clifford R., St. Louis
Kelly, Charles A., St. Louis
Kelly, R. Emmet, St. Louis
Kendall, Edw. A., Jr., St. Louis
Keyes, E. Lawrence, St. Louis
King, G. W., St. Louis
Kinsella, D. L., Jr., St. Louis
Kirchner, Walter C. G., St. Louis
Klein, Arnold G., St. Louis
Klein, Bert H., St. Louis
Klein, Harry A., St. Louis
Kleinschmidt, C., Clayton
Klemme, Roland M., St. Louis
Klenk, Charles L., St. Louis
Klippel, Allen P., St. Louis
Klippel, B. W., St. Louis
Kneal, Ellsworth. St. Louis
Knight, Wm. A., Jr., St. Louis
Kohler, Eugene J., St. Louis
Kohler, Louis H., St. Louis
Koon, Bernard T., St. Louis
Kopp, Jules, H., St. Louis
Kountz, Wm. B., St. Louis
Koutsoumpas, Wm., U., St. Louis
Kowert, Edward H., St. Louis
Kraft, Edward O., St. Louis
Kramer, Fred, St. Louis
Kramer, Scott G., Houston, Mo.
Kramolowsky, H. H., St. Louis
Kuenkel, Victor H., St. Louis
Kurz, R. F., St. Louis
Kuttner, Marianne, St. Louis
Langenbach, A. M., St. Louis
Lansche, E. A., St. Louis
Larsen, Kenneth V., St. Louis
Lawrence, J. V., St. Louis
LeBlanc, Leo J., St. Louis
Lederman, J., St. Louis
Lee, E. F., Jr., St. Louis
Leighton, Wm. E., St. Louis
Lembeck, Joseph A., St. Louis
Levy, Irwin, St. Louis
Liese, Grover, St. Louis
Lipman, Bernard, St. Louis
Littmann, Lewis, St. Louis
Loeb, Virgil, St. Louis
Loeffel, Ellen, St. Louis
Lohr, Curtis H., Clayton
LoPiccolo, Vincent, J., St. Lousi
Lowenstein, Paul S., St. Louis
Lucido, Joseph L., St. Louis
Luedde, Philip, S., St. Louis
Luedde, W. H., St. Louis
Luten, Drew, St. Louis
Lyman, Edward H., St. Louis
Lyman, H. W., St. Louis
McAdam, C. Rush, St. Louis
McCall, E. L., Brentwood
McCaughan, J. M., Ladue
McDonald, George H., St. Louis
McElvain, R. C., St. Louis
McFarlane, John A., St. Louis
McMahon, Alphonse, St. Louis
McNalley, F. P., St. Louis
Macnish, J. M., St. Louis
Macon, Wm., L., Jr., St. Louis
Macko, Joseph R., St. Louis
Magallon, Dorothy T., St. Louis
Malles, A. Conrad, St. Louis
Mannis, Ben G., St. Louis
Martin, Charles E., St. Louis
Martin, Maynard W., St. Louis
Mason, Roy E., St. Louis
Mathae, George H., St. Louis
Max, C. O. C., St. Louis
Max, Paul F., St. Louis
Meiners, T. M., St. Louis
Meisenbach, A. Edw., St. Louis
Melick, W. F., St. Louis
Mendonsa, L. E., St. Louis
Merenda, Sam J., St. Louis
Merz, Jean J., St. Louis
Meyer, Curtis A., St. Louis
Michael, V. E., St. Louis
Michaelree, J. F., Maplewood
Mier, Thomas, St. Louis
Miller, H. Edward, St. Louis
Millikin, L. A., St. Louis
Miloslavich, Edw. L., St. Louis
Milster, Clyde R., St. Louis
Moeller, Carl E., St. Louis
Moore, Neil S., St. Louis
Moragues, Vincent, St. Louis
Morman, William D., St. Louis
Morris, Harvey E., St. Louis
Morris, Mary E., St. Louis
Moskop, P. G., St. Louis
Motzel, Albert J., St. Louis
Mountjoy, Grace, St. Louis
Mudd, J. G., St. Louis
Mueller, C. B., St. Louis
Mueller, Robert, St. Louis
Muether, R. O., St. Louis
Mullarky, W. A., St. Louis
Mulligan, Leo V., St. Louis
Murphy, John C., St. Louis
Myers E. Lee, St. Louis
Neilson, A. W., St. Louis
Neilson, C. H, St. Louis
Nemec, S. S., St. Louis
Nemours, Paul R., St. Louis
Newman, Percy, St. Louis
Nicolai, C. H., St. Louis
Norton, Wm. H., St. Louis
Obermeyer, Chas. G., St. Louis
Odell, Richard T., St. Louis
O'Dowd, J. A., St. Louis
Ohmoto, Masao, St. Louis
Olmsted, Wm., H., St. Louis
O'Neill, John B., St. Louis
Orenstein, Jos, M., St. Louis
O'Sullivan, Geo. A., St. Louis
Palazzo, Frank A., St. Louis
Paletta, Francis X, St. Louis
Parker, Wm., St. Louis
Parsons, E. H., St. Louis
Peden, Joseph, C., St. Louis
Pelz, Mort D., St. Louis
Pernoud, F. G., Sr., St. Louis
Pernoud, F. G., Jr., St. Louis
Pernoud, Michael F., University City
Peugnet, Hubert B., St. Louis
Pfeifer, Oliver C., St. Louis
Plag, A. F., St. Louis
Ploch, Bernard, St. Louis
Ploehn, Emma, St. Louis
Plumpe, T., St. Louis
Polley, R., St. Louis
Pollock, E. L., St. Louis
Portuondo, B. C., St. Louis
Post, Hayward, St. Louis
Powell, Earl A., St. Louis
Powell, R. V., St. Louis
Preston, John F., Jr., Brentwood
Probstein, J. G., St. Louis
Pruett, Burchard S., St. Louis
Pulliam, M. J., St. Louis
Quinn, Abram T., St. Louis
Raemdonck, A. J., St. Louis
Raley, Burch V., St. Louis
Ramos, Raoul L., St. Louis
Ready, James H., St. Louis
Regan, W. W., St. Louis
Reh, Edward P., St. Louis
Reiches, A. J., St. Louis
Rendleman, George, St. Louis
Rice, Earl R., St. Louis
Ries, Douglas A., St. Louis
Ritchie, Frances R., St. Louis
Robert, Harold K., St. Louis
Roblee, Melvin A., St. Louis
Romendick, Samuel S., St. Louis
Rosenberg, Meyer B., St. Louis
Rosenfeld, Henry, St. Louis
Rosenfeld, Herman J., St. Louis
Rosenthal, L. G., St. Louis

Roth, John J., St. Louis
Rotter, J. C., St. Louis
Ruddell, Geo. W., St. Louis
Ruhling, Rudy, St. Louis
St. John, Dewey, St. Louis
St. John, Thomas C., St. Louis
Sale, Llewellyn, St. Louis
Sanders, T. E, St. Louis
Sauer, W. E., St. Louis
Sauer, W. Nicholas, Brentwood
Saxton, John A., Jr., St. Louis
Schechter, Samuel E., St. Louis
Scherman, Victor E., St. Louis
Schlossstein, A. G., St. Louis
Schlueter, Newell, St. Louis
Schlueter, Robert E., St. Louis
Schmiemeier, H. A., St. Louis
Schnoebelen, P. C., St. Louis
Scholz, Roy P., St. Louis
Schuchat, W. Louis, St. Louis
Schumacher, C. W., St. Louis
Schwartz, Frederick O., St. Louis
Sciortino, John S., St. Louis
Scopelite, Joseph A., St. Louis
Scott, E. P., St. Louis
Scott, Wendell G., St. Louis
Seddon, John W., St. Louis
Sewing, Arthur H., St. Louis
Sexton, Daniel L., St. Louis
Shakelford, H. H., St. Louis
Shaner, John F., St. Louis
Shelton, Harold J., Webster Groves
Sherard, J. C., St. Louis
Sheridan, Edmund R., St. Louis
Sherwin, Charles F., St. Louis
Sherwin, Charles S., St. Louis
Shrader, E. Lee, St. Louis
Shutt, Cleveland H., St. Louis
Shy, James E., St. Louis
Sievers, Edw. F., St. Louis
Signorelli, A. J., St. Louis
Silvermintz, Saul D. St. Louis
Simon, Jerome I., St. Louis
Simon, Thomas R., St. Louis
Simpson, Eber, St. Louis
Simril, Wayne A., Clayton
Sinner, B. L., St. Louis
Sisk, James C., St. Louis
Smith, Herbert P., St. Louis
Smith, Hugh R., St. Louis
Smith, J. Earl, St. Louis
Spinzig, Edgar W., Kirkwood
Spivy, R. M., St. Louis
Stahl, P. D., St. Louis
Stanze, Frank J., St. Louis
Starkloff, Gene B., St. Louis
Starkloff, Max, St. Louis
Steinberg, F. U., St. Louis
Steiner, A. S., St. Louis
Stephens, Louis F., St. Louis
Stewart, Floyd, St. Louis
Stolar, J., St. Louis
Stone, Charles A., St. Louis
Strauss, Arthur E., St. Louis
Stroud, C. Malone, St. Louis
Stryker, G. V., St. Louis
Stubbs, James B., St. Louis
Stutsman, A. C., St. Louis
Sweet, Herbert C., St. Louis
Swekosky, Frank J., St. Louis
Tainter, F. J., St. Louis
Talbott, Hudson, St. Louis
Thompson, Lawrence D., St. Louis
Thompson, J. W., St. Louis
Thompson, R. L., St. Louis
Tichenor, Robert, St. Louis
Titterington, P. F., St. Louis
Tjoflat, Oliver E., St. Louis
Tobias, Norman, St. Louis
Tomlinson, W. L., St. Louis
Tonelli, George L., St. Louis
Trotter, Francis O., Jr., St. Louis
Uhlemeyer, H. A., Sr., St. Louis
Uhlemeyer, Henry A., Jr., St. Louis
Vaughan, John R., St. Louis
Vaughn, A. N., St. Louis
Vezau, S., St. Louis
Vinson, T. C., St. Louis
Virant, John A., St. Louis
Viviano, J. G., St. Louis
Vogt, W. H., Jr., St. Louis
Vohs, Carl F., St. Louis
Von Kaenel, J. E., St. Louis
Wagenbach, W. F., St. Louis
Waickman, Francis J., St. Louis
Walters, Harold E., St. Louis
Wattenberg, Carl A., St. Louis
Weber, E. P., St. Louis
Weir, Don C., St. Louis
Weiss, Richard S., St. Louis
Weiss, William, St. Louis
Wentzel, Louis, St. Louis
Werner, A. A., St. Louis
Westerman, Henry C., St. Louis
Weyerich, Leon F., St. Louis
White, C. A., St. Louis
White, Orville O., St. Louis
Wiatt, Wm. S., St. Louis
Wilcox, C. V., St. Louis
Wilhelmi, Otto J., St. Louis
Williamson, W. E., St. Louis
Wirthlin, E. H., St. Louis
Witt, Clyde M., St. Louis
Wood, Gary B., St. Louis
Wood, William G., St. Louis
Woodruff, Frederick E. St. Louis
Woolsey, R. D., St. Louis
Wotawa, Wm. J., St. Louis
Wulff, George, Jr., St. Louis
Younger, Walter A., St. Louis
Younger, Jesse, Clayton
Zeinert, Oliver B., St. Louis
Zeitler, William T., St. Louis
Zink, Oscar S., St. Louis

Fourth Councilor District—146

Alex, Morris, St. Louis
Altheide, H. E., Rockhill
Armstrong, John H., Kirkwood
Backlar, Joseph, Richmond Heights
Bailey, W. H., St. Louis
Baron, William, St. Louis
Beers, Robert G., St. Louis
Bennett, C. E., Webster Groves
Bernstorff, Paul H., St. Louis
Berwald, Irwin I., St. Louis
Bierman, Martyn H., St. Louis
Bolger, B., Festus
Brenner, Paul A., Owensville
Briscoe, John R., Maplewood
Brossard, P. M., Maplewood
Brown, Eugene R., University City
Brown T. K., St. Louis
Brown, W. S., St. Louis
Canepa, Francis J., University City
Canty, E. J., St. Charles
Clay, Calvin, St. Charles
Cohle, Richard R., University City
Compton, J. Roy, St. Louis
Creech, J. C., Troy
Daly, John R., St. Louis
Damron, E. O., Elsberry
Davis, I. R., St. Louis
Davidson, Morris, St. Louis
Denny, R. B., University City
Diehr, M. A., St. Louis
DiLeo, S. W., St. Louis
Domke, Herbert R., Kirkwood
Dowd, James F., St. Louis
Drescher, E. R., St. Louis
Dyer, Clyde P., Webster Groves
Ecker, D. B., Pacific
Finley, F. L., Overland
Flynn, Geo. W., St. Louis
Forbes, Gilbert B., Webster Groves
Forsman, Waldo W., Affton
Fuchs, George J., St. Louis
Franklin, Harold, St. Louis
Freiheit, Harold J., St. Louis
Gage, Helen, Webster Groves
Gaines, Quentin M., Kirkwood
Goldman, H. J., St. Louis
Goodman, Nathaniel, St. Louis
Gowen, Leo F., Glendale
Graeser, Richard, St. Louis
Hagemann, Paul O., St. Louis
Hale, T. H., St. Louis
Hampton, Oscar P., St. Louis
Hendin, A., St. Louis
Hengen, H. E., Pattonville
Howe, Louis F., Brentwood
Huck, Frank, Fenton
Irick, Carl C., Webster Groves
Ishii, Albert, Clayton
Jacobs, Gustave E., St. Louis
Jenkins, J. M., St. Charles
Jensen, Julius, St. Louis
Johnson, G. C., Marthasville
Jolly, Wm. H., St. Charles
Jones, Dorothy J., St. Louis
Keller, R. M., Owensville
Kendis, Joseph B., St. Louis
King, E. E., St. Louis
Kingsland, Robert C., Clayton
Kister, George E., St. Charles
Koch, Otto W., Clayton
Lachance, L., Centralia
Leslie, C. H., Glendale
Levey, S. A., Clayton
Lewin, Wilbur H., St. Louis
Magness, Guy N., University City
Marcus, M. D., St. Louis
Mayer, Robert A., St. Louis
Mays, Frank G., Washington
McGlew, James A., Jefferson Barracks
McLeon, Royal C., Kirkwood
McMurray, H. C., Wentzville
McNearney, Joseph, St. Louis
Meador, James R., Clayton
Mendonsa, Elsa L., University City
Merritt, B. A., St. Louis
Morse, F. L., St. Louis
Muench, L. O., Washington
Nakada, James R., St. Louis
O'Connell, John, Overland
Oetting, Henry K., St. Louis
Parman, D. R., University City
Penn, R. M., Silex
Petersen, Fenton J., Richmond Heights
Phillips, Handord, St. Louis
Prichard, Joseph A., Overland
Reinhard, Edw. H., St. Louis
Richardson, Wm. R., Union
Richtarsic, S. R., Clayton
Roberts, John R., St. Louis
Rutledge, John F., Crystal City
Rutledge, Paul E., Kirkwood
Sasaki, George R., St. Charles
Schattyn, Martyn, St. Louis
Scheele, M. H., University City
Schmidt, Herbert H., Marthasville
Schmidt, Herbert J., Marthasville
Schmidt, C. A., Gerald
Schulein, Vernon E., Crystal City
Selle, H. C., St. Louis
Sharp, Cecil A. Z., St. Louis
Shaw, Carvel T., Hermann
Shepherd, C. T., St. Louis
Smith, Wm. A., Webster Groves
Spitzer, Ernest, St. Louis
Stein, H. J., St. Louis
Stein, Leonard P., St. Louis
Steinbeck, H. D., Pacific
Steiner, A. J., St. Louis
Sterling, J. A., Maplewood
Stewart, Frances H., University City
Strehlman, B. G., Union
Stuebner, Roland W., Clayton
Sutter, Richard A., St. Louis
Teiber, Fred W., St. Louis
Tiernon, Luke B., St. Louis
Towers, O. W., St. Charles
Townsend, J. A., House Springs
Tremain, E. E., Maplewood
Vitale, Anthony J., St. Louis
Vitale, Nicholas S., St. Louis
Vizgird, J. J., St. Louis
Votaw, Robert E., St. Louis
Wall, Albert, Jennings
Walther, Roy A., Jr., Overland
Walther, Roy A., Sr., Overland
Weber, Wm. K., Normandy
Weitman, Maximilian, St. Louis
Wepprich, M. S., Washington
Westrup, Arthur W., Webster Groves
Westrup, E. A., Webster Groves
Whitener, Paul R., St. Louis
Williamson, O. E., Richmond Heights
Wyatt, Lois C., Kirkwood
Yost, Walter B., St. Louis
Young, John S., St. Louis

Fifth Councilor District—49

Allee, James W., Columbia
Allee, W. L., Eldon
Anderson, E. J. T., Montgomery City
Baker, James M., Columbia
Belden, E. R., Jefferson City
Bloom, W. A., Fayette
Bohrer, Edw. R., Jefferson City
Burke, J. P., Jr., California
Caldwell, J. C., Fulton
Chalkley, Judson I., Columbia
Chamberlain, G. I., New Franklin
Cooper, Maurice E., Columbia
Cremer, Wm. J., Fulton
Crews, R. N., Fulton
Dorris, R. P., Jefferson City
Dwyer, Thomas L., Mexico
Gillham, F. W., Jefferson City
Gunn, A. J., Versailles
Harrison, J. F., Mexico
Jolley, J. F., Mexico
Kibbe, Edgar A., California
Ladenson, R. P., Columbia
Lamb, Sam E., Glasgow
Latham, Kenyon, California
Latham, L. L., California
Loyd, Earl L., Jefferson City
McCall, W. K., Laddonia
McComas, A. R., Sturgeon
Mansur, E. E., Jefferson City
Meier, Francis X., Jefferson City
Meinershagen, C. W., Jefferson City
Menefee, Buell, Montgomery City
Neal, M. Pinson, Columbia
Ossman, J. A., Jefferson City
Sandy, Charles, Pilot Grove
Schmidtke, Edwin C., Columbia
Shaw, Wm. J., Fayette
Smith, Stephen D., Columbia
Stewart, Wm. J., Columbia
Stuart, B. M., Boonville
Sugarbaker, Everett D., Jefferson City
Summers, J. S., Jefferson City
Summers, J. S., Sr., Jefferson City
Thomas, Horace E, Columbia
Washburn, J. L., Versailles
Wiley, H. M., Jefferson City
Winn, G. W., Boonville
Wood, George F., Fulton
Yeager, Helen E., Columbia

Sixth Councilor District—18

Campbell, A. J., Sedalia
Cooper, John M., Butler
Davis, C. Braxton, Nevada
Garner, Lynn M., Jefferson City
Haynes, Robert C., Marshall
Johnson, C. S., Warrensburg
Kennedy, R. W., Marshall
Lawless, C. L., Marshall
McBurney, C. A., Slater
McCorkle, F. Lee, Horton, Kansas
Neis, H. B., Harrisonville
Potter, Reese H., Webster Groves
Robinson, E. E., Adrian
Siegel, P. V., Smithton
Tracy, H. A., Belton

Walker, H. B., Clinton
Walter, A. L., Sedalia
Wray, R. B., Nevada

Seventh Councilor District—54

Altringer, A. N., Kansas City
Arms, Arnold V., Kansas City
Asher, Graham, Kansas City
Bruner, Robert E., Kansas City
Buhler, Victor B., Kansas City
Carlson, Hjalmar E., Kansas City
Culbertson, W. F., Springfield
Dennie, Charles C., Kansas City
Diveley, Rex L., Kansas City
Duncan, R. E., Kansas City
Elliott, B. Landis, Kansas City
Engel, L. P., Kansas City
Ferris, Carl R., Kansas City
Frick, J. Paul, Kansas City
Gainey, Harold L., Kansas City
Gearhart, Merriam, Bethany
Goldman, Max, Kansas City
Hall, John R., Ashland
Hall, Thomas B., Kansas City
Hamilton, Buford, Jefferson City
Herrman, Geo. V., Kansas City
Hess, H. Lewis, Kansas City
Hoffman, J. S., Kansas City
Hoffmann, R. Lee, Kansas City
Hollweg, Kenneth C., Kansas City
Hunt, Claude J., Kansas City
Hunter, Martin P., Kansas City
Jaime, Nicolas, Kansas City
Jansen, Robert, Kansas City
Jones, Harry L., Kansas City
Kantor, Julius, Kansas City
Kent, C. F., Kansas City
Kimball, Merritt H., Kansas City
Knight, John S., Kansas City
Lapp, John G., Kansas City
McAlester, A. W., III, Kansas City
McAlester, A. W., Jr., Kansas City
McDonnell, John F., Kansas City
McCunniff, W. B., Webster Groves
McVay, James R., Kansas City
MacInnis, Florence, Kansas City
Mantz, Herbert L., Kansas City
Miles, George O., Kansas City
Monahan, E. P., Kansas City
Porter, Louis, Kansas City
Rinkel, H. J., Kansas City
Robinson, G. Wilse, Kansas City
Rubnitz, Leon H., Kansas City
Simpson, Morris B., Kansas City
Virden, C. Edgar,
White, Edwin C., Kansas City
Winston, Bernard H., Kansas City
Young, J. W., Kansas City

Eighth Councilor District—55

Barnett, C. H., Bolivar
Beers, E. G., Seymour
Blanke, O. T., Joplin
Brasher, C. A., Mt. Vernon
Callaway, Guy D., Springfield
Capetti, Alex P., Aurora
Coffelt, Kenneth C., Springfield
Coffman, Esther E. L., St. Louis
Dills, Joseph N., Springfield
Donley, Robert R., Monett
Elkins, Ronald F., Springfield
Farthing, Fred R., Springfield
Ferguson, Robert M., Webb City
Ferrell, F. E., Springfield
Gentry, M. L., Springfield
Glasco, L. A., Urbana
Glover, Kenneth, Mt. Vernon
Hall, Durward G., Springfield
Hamilton, E. H., Joplin
Hargrove, Fred T., Jefferson Barracks
Harris, Thomas S., Springfield
H'Doubler, F. T., Springfield
Hogeboom, George W., Springfield
Hoover, H. Lee, Springfield
Johnston, J. L., Springfield
Knabb, H. E., Springfield
Knabb, Kenneth E., Springfield
Knapp, Rudolf, Golden City
Lockhart, Chas. E., Springfield
McCallum, A. J. C., Aurora
McCraw, Doyle C., Bolivar
McIntire, Emery J., Carthage
Macdonnell, C. R., Marshfield
Maher, Robert W., Springfield
Maples, F. H., Mt. Vernon
Mitchell, Ernest, Joplin
O'Brien, John R., Bolivar
Plummer, G. C., Buffalo
Rainwater, E. H., Springfield
Reid, Charles T., Joplin
Rigney, L. M., Springfield
Schwartz, E. J., Springfield
Schweitzer, F. C., Springfield
Sewell, W. S., Springfield
Silsby, Don J., Springfield
Silsby, Harry D., Springfield
Simpson, E. L., Springfield
Smith, C. Souter, Springfield
Smith, Wallis, Springfield
Threadgill, J. M., Forsyth
Vail, A. Denton, Springfield
West, W. M., Monett,
White, R. Ned, Springfield
Williams, John W., Jr., Springfield
Yancey, Daniel L., Springfield

Ninth Councilor District—27

Ames, A. C., Mountain Grove
Antonmattei, Jean C., St. Louis
Baysinger, S. L., Rolla
Bohrer, E. C., West Plains
Breuer, R. E., Newburg
Buckthorpe, T. C., Waynesville
Burns, T. J., Houston
Carrington, H. W., Lebanon
Cooper, Claude W., Thayer
Cotton, T. W., Van Buren
Davis, H. H., Rolla
Denney, R. W., Mountain Grove
Everist, Guy V., Rolla
Frame, H. G., Mountain Grove
Hammler, C. V., St. James
Harrell, R. E., Lebanon
Herzog, G. G. A., Cuba
Jenkins, Paul, Lebanon
Joseph, G. E., Salem
Knowles, Roy F., Rolla
Lytle, Wm. R., Waynesville
Roock, Paul C., Richland
Ryan, R. A., Mountain Grove
Smith, Rollin H., West Plains
Stricker, E. A., St. James
Summers, J. H., Lebanon
Underwood, M. K., Rolla

Tenth Councilor District—41

Appleberry, C. H., Flat River
Appleberry, Dailey, Rivermines
Ashley, H. V., Cape Girardeau
Baldwin, Paul, Kennett
Bredall, J. J., Perryville
Bull, Ben M., Ironton
Cain, C. F., Caruthersville
Campbell, Edward D., Cape Girardeau
Cofer, James C., Kennett
Crouch, F. R., Farmington
Critchlow, Wm. C., Sikeston
Crowe, John T., Cape Girardeau
Dorris, G. T., Illmo
Elrod, D. B., Cape Girardeau
Estes, A. M., Cape Girardeau
Evans, A. L., Bonne Terre
Ferguson, W. J., Sikeston
Finney, W. O., Caffee
Fuerth, A. L., Cape Girardeau
Gibson, O. J., Cape Girardeau
Grossman, Marvin, Fredericktown
Hall, Frank W., Cape Girardeau
Haw, Marvin T., Jr., Bonne Terre
Henrickson, H. M., Poplar Bluff
Herbert, C. T., Cape Girardeau
Hoctor, Emmett F., Farmington
Jones, Paul F., Flat River
Killian, John J., Portageville
Miller, Herbert S., Jefferson City
Nienstedt, E. J., Sikeston
Reynolds, G. A., Cape Girardeau
Ritter, R. A., Cape Girardeau
Rowe, A. R., Poplar Bluff
Seabaugh, D. I. L., Jackson
Slaughter, S. C., Fredericktown
Sutton, Charles E., Ladue
Taylor, Van W., Bonne Terre
Tygett, Glenn J., Cape Girardeau
Watkins, Geo. L., Farmington
Williams, J. E., Doniphan
Wilson, Charles F., Cape Girardeau

Guest Speakers—7

Adams, R. Charles, Rochester, Minnesota
Barnes, A. R., Rochester, Minnesota
Cole, Warren, Chicago, Illinois
Conn, J. W., Ann Arbor, Michigan
Holinger, Paul, Chicago, Illinois
Lawrence, Joseph C., Washington, D. C.
Potter, Edith, Chicago, Illinois
Schmitz, Herbert E., Chicago, Illinois

Guest Physicians—184

Ahern, A. M., St. Louis
Avery, Bruce F., St. Louis
Anderson, Robin, St. Louis
Barnsbach, R. S., Edwardsville, Illinois
Barton, G. D., St. Louis
Bauer, J. D., St. Louis
Bergmann, Martin, St. Louis
Berkay, F., St. Louis
Berry, R. C., Lebanon, Illinois
Bishop, M. D., St. Louis
Bitzan, J. L., St. Louis
Black, C. S., Warren, Indiana
Boal, Delford H., Clayton
Boler, Thos. D., Jr., St. Louis
Bonebrake, Mac D., St. Louis
Brennan, Robert A., St. Louis
Brewer, Arthur A., Alton, Illinois
Brooks, Clifton R., St. Louis
Brown, Robert, St. Louis
Bullington, G. C., Pana, Illinois
Burke, R. J., St. Louis
Burstone, Marvin, St. Louis
Bussmann, D. W., Clayton
Byrne, E. T., St. Louis
Byrne, John E., St. Louis
Campbell, G. L., Arkansas City, Kansas
Campbell, Mark, Wright City
Carlin, Richard, St. Louis
Carpenter, E. M., Lebanon, Illinois
Clark, C. L., Duluth, Minnesota
Clarke, James Y., Sioux Falls, South Dakota
Clusin, Carl E., St. Louis
Collodi, Geo. A., St. Louis
Cordeu, Jonathan, Macon
Cox, D. W., Jr., Jefferson Barracks
Curtis, William C., Marion, Illinois
Davis, I. W., Belleville, Illinois
Dawson, Robert G., St. Louis
DeStefano, A. P., St. Louis
Devereux, R. L., Sioux City, Iowa
DeWitt, Robert H., St. Louis
Doubek, John C., Jr., Affton
Duncan, C. E., St. Louis
Eames, Dan H., Jr., St. Louis
Ebel, Eugene H., St. Louis
Ellis, Sam, St. Louis
Fee, Wesley, St. Louis
Ferry, J. Donald, St. Louis
Fischer, F., Kansas City
Fisherman, E. W., Carmi, Illinois
Flanz, Bernard, St. Louis
Forster, A. F., Webster Groves
Franklin, A., St. Louis
Gaddis, John W., St. Louis
Gallant, A. L., St. Louis
Glasgow, Doublas M., St. Louis
Goldhar, Albert, Toronto, Canada
Gomillion, J. D., Galveston, Texas
Goodfriend, Murray I., Kirkwood
Griswold, Ross W., Litchfield, Illinois
Grosby, Charles, D.D.S., St. Louis
Grosby, H., St. Louis
Gruenwald, A. Francis, Alton, Illinois
Gruenwald, Siegfried, Alton, Illinois
Hackney, Jack D., St. Louis
Halley, Henry, Alton, Illinois
Harding, H. Claggett, Portland, Oregon
Hardwicke, H. M., Columbia
Harlow, Joseph E., St. Louis
Hart, L. L., University City
Harting, H. R., St. Louis
Hartnett, W. G., Marion, Illinois
Haskins, John B., Chattanooga, Tennessee
Hawk, Bray O., St. Louis
Hellmann, R. H., St. Louis
Henry, J. C., East St. Louis, Illinois
Hofstatter, Lilli, St. Louis
Hunter, T. H., St. Louis
Husel, Don H., St. Louis
Inkley, John, St. Louis
Jasper, L. H., D.D.S., St. Louis
Johnson, O. H., Denver, Colorado
Josef, Adrian, Mt. Vernon, Illinois
Jukofsky, S. L., Clayton
Jusionis, J., Alton, Illinois

Kamberg, Samuel, Jefferson Barracks
Keely, Thomas, Jr., St. Louis
Ketterer, W. R., Breese, Illinois
Kheim, Teofil, St. Louis
King, James P., St. Louis
Kistner, F., St. Louis
Klug, Oscar C., East St. Louis, Illinois
Kordenat, Ralph G., St. Louis
Korn, Robert L., St. Louis
Krag, C. L., St. Louis
Krieger, John L., St. Louis
LaDriere, R. J., St. Louis
Langa, Ambrose M., Moberly
Leb, Samuel, St. Louis
Lenzen, John L., St. Louis
Lieb, Francis X., St. Louis
Lindner, Tony, St. Louis
Lipsitz, Ellis S., Clayton
Logan, Ralph, St. Louis
Longenecker, H. S., Long Island, New York
Lyda, E. W., St. Louis
Lynxwiler, Chester P., St. Louis
McColl, Iona, Alton, Illinois
McCullough, Jerome J., Belleville, Illinois
McDonald, J. D., Evansville, Indiana
McNeil, James L, St. Louis
MacDonald, A. J., St. Louis
Mahe, G. A., Jr., Clayton
Mangum, J. R., University City
Matteson, Hamlin, Minneapolis, Minnesota
Mead, Sedgwick, St. Louis
Miksicek, John E., St. Louis
Monroe, D. D., Alton, Illinois
Morley, Fred H., Roxana, Illinois
Morton, Roscoe F., Arkansas City, Kansas
Mosco, J. A., St. Louis
Murfin, Walter W., Decatur, Illinois
Musman, Morris, East St. Louis, Illinois
Nelson, O. T., St. James
Oliver, David R., St. Louis
O'Neill, Paul, Alton, Illinois
Pfeiffenberger, Mather, Alton, Illinois
Pollinger, P. L., St. Louis
Popp, Carol, Mt. Vernon
Reulbach, Franklin, St. Louis
Ridings, Harold D., Kansas City
Ridley, Roger W., Rochester, Minnesota
Rifkin, Shale, St. Louis
Rose, R. F., Dupo, Illinois
Rosenbaum, Herbert E., University City
Roth, Robert E., Clayton
Roxas, Antonio L., St. Louis
Ruby, Robert H., St. Louis
Russell, Blanton E., St. Louis
Sanders, H. H., St. Louis
Sanderson, R. J., Beloit, Wsconsin
Scheibal, George S., St. Louis
Schermer, J., Granite City, Illinois
Schierman, Wm. D., University City
Schmidt, Edwin H., St. Louis
Schmidt, Herbert S., Brentwood
Sellers, W. L., Mobile, Alabama
Siesener, H. H., St. Louis
Silberberg, Ruth, St. Louis
Simmons, Theodore, St. Louis
Simon, Abraham, Alton, Illinois
Smith, Sidney, Chicago, Illinois.
Spitze, Edward, St. Louis
Stacey, Wallace R., St Louis
Stanton, M. F., St. Louis
Stearns, Colby S., Webster Groves
Stone, Robert B., St. Louis
Streicher, D. L., Jefferson Barracks
Sullivan L. X., St. Louis
Sweeney, Wm. M., St. Louis
Sylvester, E. B., Alton, Illinois
Terkildsen, Kirsten, Mt. Vernon, Illinois
Thomas, Victor D., St. Louis
Toombs, Vernon L., St. Louis
Trippel, Edward, O'Fallon, Illinois
Truhlsen, Stanley M., St. Louis
Tsang, John L. K., St. Louis
Twente, George E., Jackson, Mississippi
Vanatta, C. L., Alton, Illinois
Van Studdiford, M. T., New Orleans, Louisiana
Voorhees, P. H., Ottumwa, Iowa
Wald, Stanley M., St. Louis
Waldman, J. S., Belleville, Illinois
Warner, Silas L., Scott Field, Illinois
Watts, Byron E., Webster Groves
Weaver, R. H., St. Louis
Weigel, Arthur E., Clayton
West, C. Owen, Edwardsville, Kansas
Westman, Ragnar T., St. Louis
Williams, Earle, Lovejoy, Illinois
Williams, John H., St. Louis
Williamson, M. R., Alton, Illinois
Wilson, F. C., Austin, Minnesota
Zemlyn, Milton, Chester, Illinois

Medical Students—298

Abrams, Kathryn, St. Louis
Almond, Earl, Maplewood
Adkins, Lewis E., Columbia
Altman, Harold, Kansas City
Anderson, M. E., St. Louis
Anlage, H. J., St. Louis
Auner, Cecil, St. Louis
Auner, Philip M., Columbia
Backer, Matt H., Jr., St. Louis
Backmann, Paul, Columbia
Baltas, Bernard J., St. Louis
Barbour, Marvin R., Columbia
Barnett, James R., St. Louis
Bass, Jack C., Columbia
Beglin, Philip M., St. Louis
Behr, Thomas S., St. Louis
Beier, Robert L., St. Louis
Berndsen, Gerard H., Columbia
Bindbeutel, D. A., St. Louis
Binkley, Robert F., St. Louis
Blalock, Robert W., St. Louis
Blalock, William H., St. Louis
Blankenship, Dale N., Columbia
Blazina, L. A., St. Louis
Borth, F. M., Kirkwood
Boudoures, P. C., St. Louis
Bowen, R. P., St. Louis
Bradley, R. V., St. Louis
Brielmaier, Charles R., St. Louis
Bringaze, W. L., Jr., St. Louis
Brown, Marie A., St. Louis
Bruce, Gerald A., St. Louis
Buehner, Donald F., St. Louis
Burcham, Thos. A., St. Louis
Burger, Paul B., St. Louis
Burke, Gene P., Columbia
Burke, Leon O., Columbia
Burns, Robert I., St. Louis
Callahan, D. E., St. Louis
Cariss, Margaret, Granite City, Illinois
Chambless, Audrey, St. Louis
Chapman, Jean A., Columbia
Chernin, Bernard, St. Louis
Christensen, E. W., Overland
Christman, Katthryn E., Columbia
Claxton, Inez, Columbia
Clippinger, Frank W., St. Louis
Cochran, Jo R., Columbia
Cole, Vernon W., Columbia
Coleman, J. K., St. Louis
Comens, Phillip, St. Louis
Comens, Ruth C., St. Louis
Connally, John P., St. Louis
Crabtree, William R., St. Louis
Criscione, J. R., St. Louis
Crozier, Franklin A., Columbia
Cox, J. Wm., St. Louis
Daley, E. F., St. Louis
Danemann, Hershel, Kansas City
Davidoff, D. E., St. Louis
Davis, Leonard L., Jr., Columbia
Davault, George K., Columbia
Davidson, John, St. Louis
Deen, Duane C., Columbia
DeKay, Raymond J., St. Louis
Denman, John, St. Louis
Denton, Peyton S., St. Louis
Derrick, C. F., Cincinnati, Ohio
Dexheimer, Frank, Columbia
Dilget, Joseph T., St. Louis
Dooley, F. A., Webster Groves
Doyle, John L., St. Louis
Doyle, Milos, St. Louis
Dubuque, T. J., Clayton
Duncan, Lee, Kansas City
Eagleton, Mark D, St. Louis
Easterday, Robert H., Columbia
Echsner, H. J., St. Louis
Edwards, J. R., Jr., St. Louis
Elias, David J., Kanas City
Elliott, Wm. E., Columbia
Ellis, M. M., Columbia
Ellis, Marion D., Columbia
Engelhardt, R. C., St. Louis
England, R. C., St. Louis
Epple, Lawrence K., Columbia
Ernst, J., St. Louis
Ernst, Richard E., Kirkwood
Eubank, William Y., St. Louis
Ewers, Frank R., Jr., St. Louis
Fairchild, J. F., Columbia
Fellows, Boyd, St. Louis
Fight, Betty Lou, Columbia
Finn, Murray, St. Louis
Fisher, Stanley, Warrensburg
Fitz, Harold L., St. Louis
Flanigan, Steve, St. Louis
Flynn, Anne, St. Louis
Franks, A., Jr., St. Louis
Frederick, Raymond O., St. Louis
Fuzzel, J., St. Louis
Galbraith, Charles J., St. Louis
Gallagher, Lionel M., Columbia
Gasser, Louis, St. Louis
Gentry, Wendell L., Columbia
Gilden, Jerome J., University City
Giuseffi, Vincent, Jr., St. Louis
Gist, Joseph M., Columbia
Gomez, Cesar A., Jr., St. Louis
Gootee, Thos. H., St. Louis
Gordon, G. S., Columbia
Grabski, Daniel A , St. Louis
Graden, Earl A., Columbia
Grisamore, Jennings M., Columbia
Grossman, Robert S., St. Louis
Hall, David W., Columbia
Handler, David, Richmond Heights
Hanes, Robert, Columbia
Harper, Guy R., Columbia
Harris, George F., Columbia
Harrison, Edgar G., St. Louis
Hartman, Howard E., St. Louis
Hauptmann, Wm. L., St. Louis
Healy, R. W., St. Louis
Heeb, Max, Columbia
Heiser, Albert L., Hannibal
Henrickson, W. E., St. Louis
Hensley, D. R., St. Louis
Hess, Howard, St. Louis
Higdon, Donald A., St. Louis
Hinds, Paul, Columbia
Hinkamp, J. F., St. Louis
Hixon, Walt S., St. Louis
Hoffman, E. P., St. Louis
Holland, Bob, St. Louis
Holton, E. B., St. Louis
Howard, Frank A., St. Louis
Hudson, Arlington M., Kirkwood
Hyde, Paul M., St. Louis
James, J. M., Columbia
James, Joseph M., Bogard
Jimenez, José L., St. Louis
Johnson, Edward M., St. Louis
Johnson, George L., Columbia
Johnson, Lawrence E., St. Louis
Jonas, Harry S., St. Louis
Jones, B. T., St. Louis
Jones, Earl D., St. Louis
Jones, Elwood L., Grandview
Jones, E. M., Columbia
Jones, Victor, Columbia
Kabalin, Nick A., St. Louis
Karsh, Robert, University City
Kee, Marvin A., St. Louis
Kelly, Allen L., St. Louis
Kemp, Joan, St. Louis
Kerlin, G. D., Columbia
Kiburz, Edward, St. Louis
King, Huberta, Columbia
Klein, Arthur, St. Louis
Knechtzes, T., St. Louis
Kuenzi, Donald E., Columbia
Kutsko, E. J., St. Louis
Kyger, John E., Columbia
Lamb, F. P., St. Louis
Langdon, J. R., St. Louis
Lanier, Earl W., St. Louis
LaVielle, C. J., Pine Lawn
Leahy, John G., St. Louis
Lee, Richard S., St. Louis
Lehmenkuler, C. F., St. Louis
Lile, Gwyn H., Columbia
Loomis, Gordon R., St. Louis
Lowry, James K., St. Louis
McCann, Louis P., St. Louis
McCanse, Andrew, Columbia
McClure, Jere, St. Louis
McComas, Robert E., St. Louis
McDonough, Patrick J., St. Louis
McQuillan, F. P., St. Louis
MacDonald, Ronald, III, St. Louis
Maester, Gilbert A., St. Louis
Maier, John G., St. Louis
Marcotti, Maurice G., St. Louis
Markowits, Andrew S., Columbia
Matteson, Mary, Columbia
Mattingly, L., St. Louis
Mendenhall, M. K., St. Louis
Meyer, William J., St. Louis
Miguel, Vera, St. Louis
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Primer of Allergy, A Guidebook for Those Who Must Find Their Way Through the Mazes of this Strange and Tantalizing State, by Warren T. Vaughan, M.S., M.D., Richmond, Virginia. With illustrations by John P. Tillery. Third Edition. Revised by J. Harvey Black, M.D., Dallas, Texas. C. V. Mosby Company. St. Louis. 1950. Price $3.50.

The success or failure of a physician's care of an allergic patient is, to a great measure and in some cases entirely, dependent upon the extent of the cooperation the physician receives from the patient himself. The patient cannot cooperate intelligently unless he is informed of the various phases of his own condition. Such discussion of allergic theory and pathogenesis has been sugar-coated in easily readable lay language with humorous illustrations in this 166 page book. Standard elimination diets and directions for the avoidance of inhalant allergens are presented in simple form. It is an excellent guide and helpful friend to the allergic patient. S. L. G.

Handbook of Obstetrics and Diagnostic Gynecology, by Leo Doyle, M.S., M.D. First Edition. Illustrations by Ralph Sweet. University Medical Publishers, Palo Alto, California. 1950. Price $2.00.

This is a completely new handbook which is divided into two sections; one on obstetrics, the other on gynecology. The material is presented in a full outline form which allows for rapid reading. The tables and illustrations are satisfactory and do a good job of developing the points intended.

It contains much valuable obstetric information in a concise and practical manner. The more important problems in clinical obstetrics are dealt with in sufficient detail to offer a clear idea of the author's thoughts in the matter. Of particular interest is the section concerning the psychodynamics of pregnancy and labor and the emotional aspects of pregnancy. This section is well done and stresses a factor in good obstetric management that is too often neglected.

The section on diagnostic gynecology is not as complete nor as detailed as the section on obstetrics, but does contain much worthwhile and up-to-date information and valuable references as to where more and detailed information may be found. The book is not intended to be a textbook nor a reference book. Its purpose is to present in the most concise form possible the essential features of obstetrics and diagnostic gynecology, as now practiced. F. C. A.

Thyroid Disease, Practical Aspects of, by George Crile, Jr., M.D., F.A.C.S., Department of Surgery, Cleveland Clinic. Illustrated. W. B. Saunders Co. Philadelphia and London. 1949. Price $6.00.

This is an excellent short treatise written by the son of one surgeon who made great strides in the favorable management of a disease once solely a surgical problem. Like the father, the son is a surgeon and a competent one but, unlike his father, has been forced to modify his surgical management of thyroid disease in keeping with the recent advances in knowledge of the disease and its efficient control by medical means.

In his treatise is portrayed well and simply the role that antithyroid drugs, radioactive compounds, and endocrine learnings are playing in remolding the thoughts of both internist and surgeon. These advances are rapidly improving morbidity and mortality statistics the country over.

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Entered as second-class matter, February 18, 1925, at the Post Office at Fulton, Missouri, under the Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Section 1003, Act of October 3, 1917, authorized July 30, 1918. Printed by The Ovid Bell Press, Inc., Fulton, Missouri.

Address all communications to The Journal of the Missouri State Medical Association, 623 Missouri Theater Building, 634 North Grand Avenue, St. Louis 3. Telephone: Newstead 0404-0405.

Subscription: $3.00 per year; 40 cents per copy.

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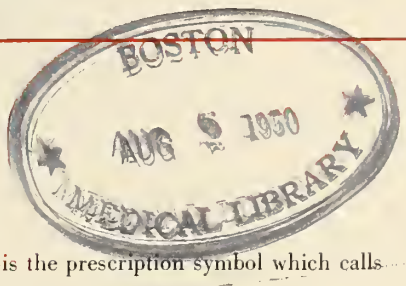
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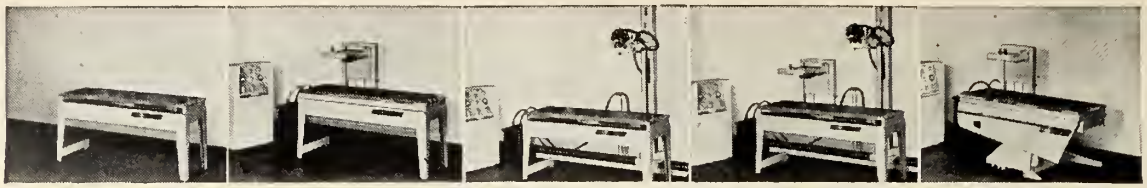
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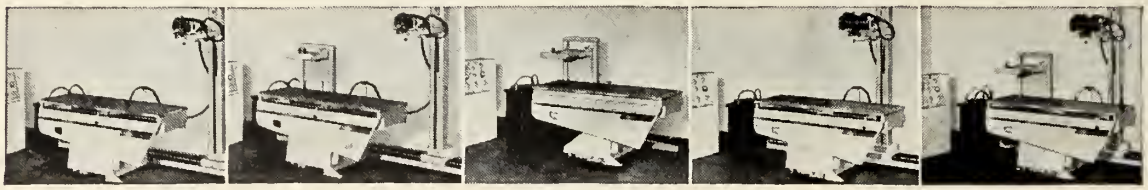
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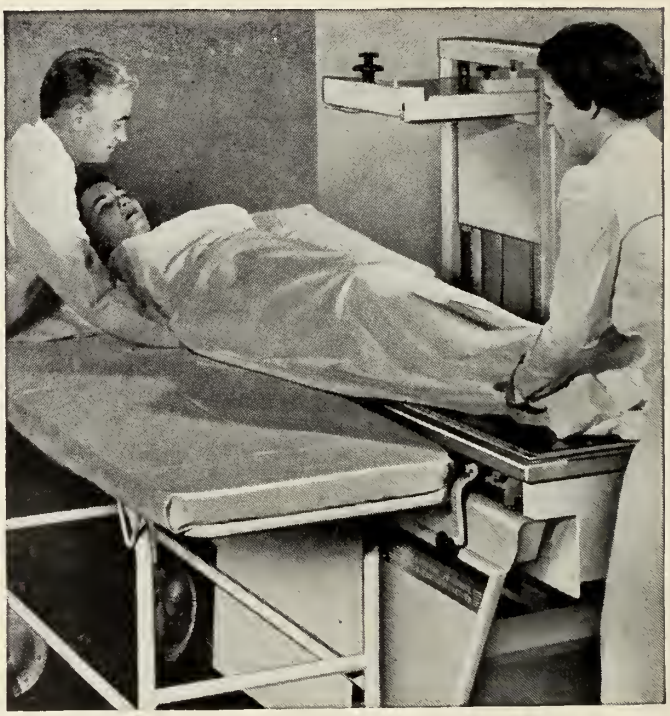


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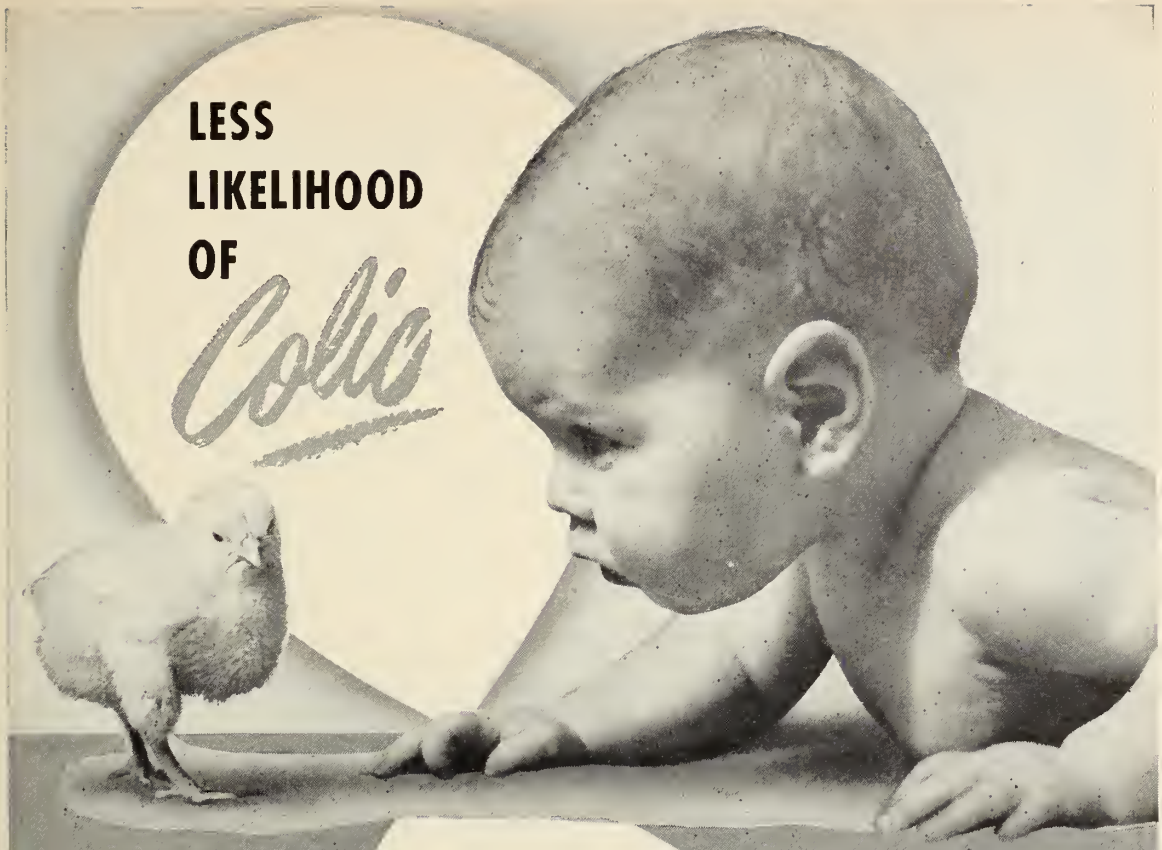
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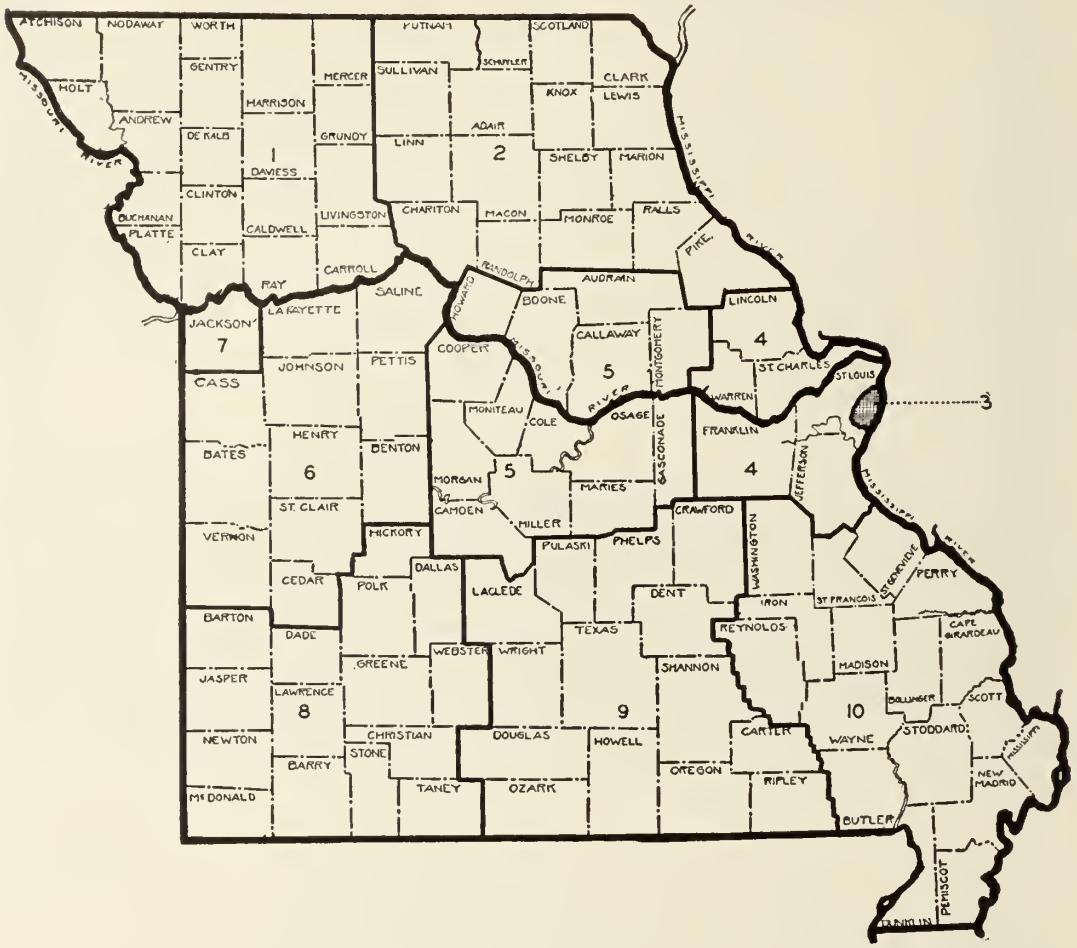


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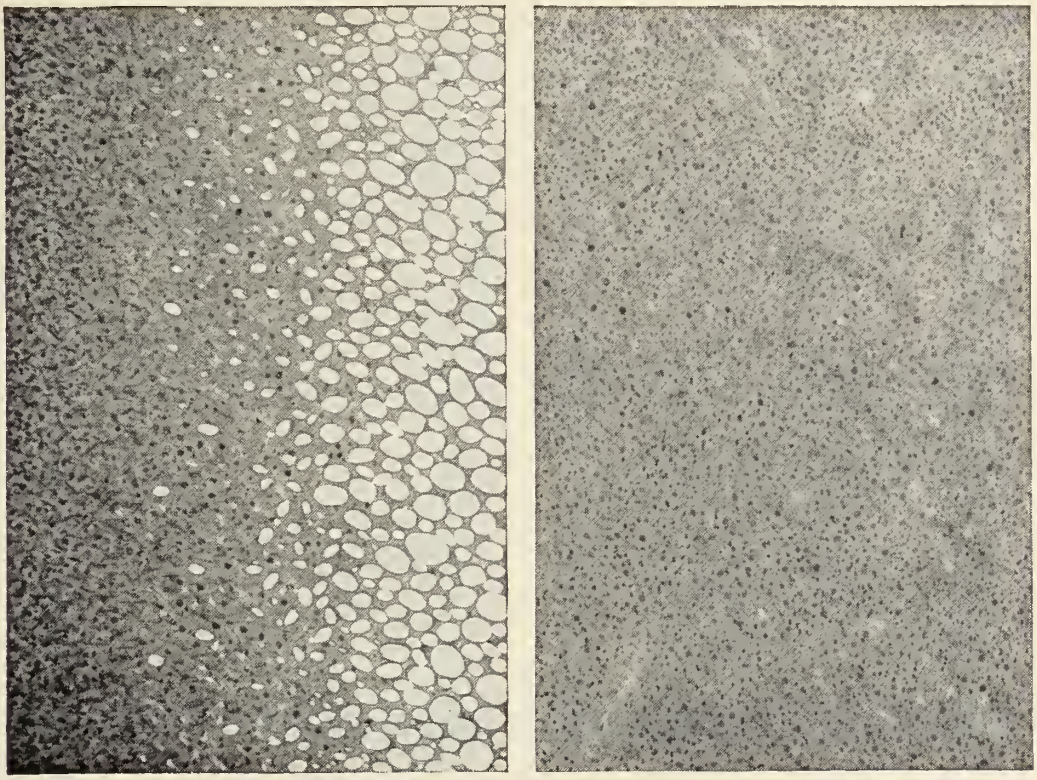
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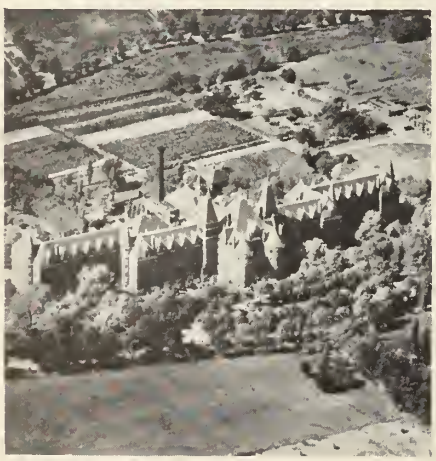
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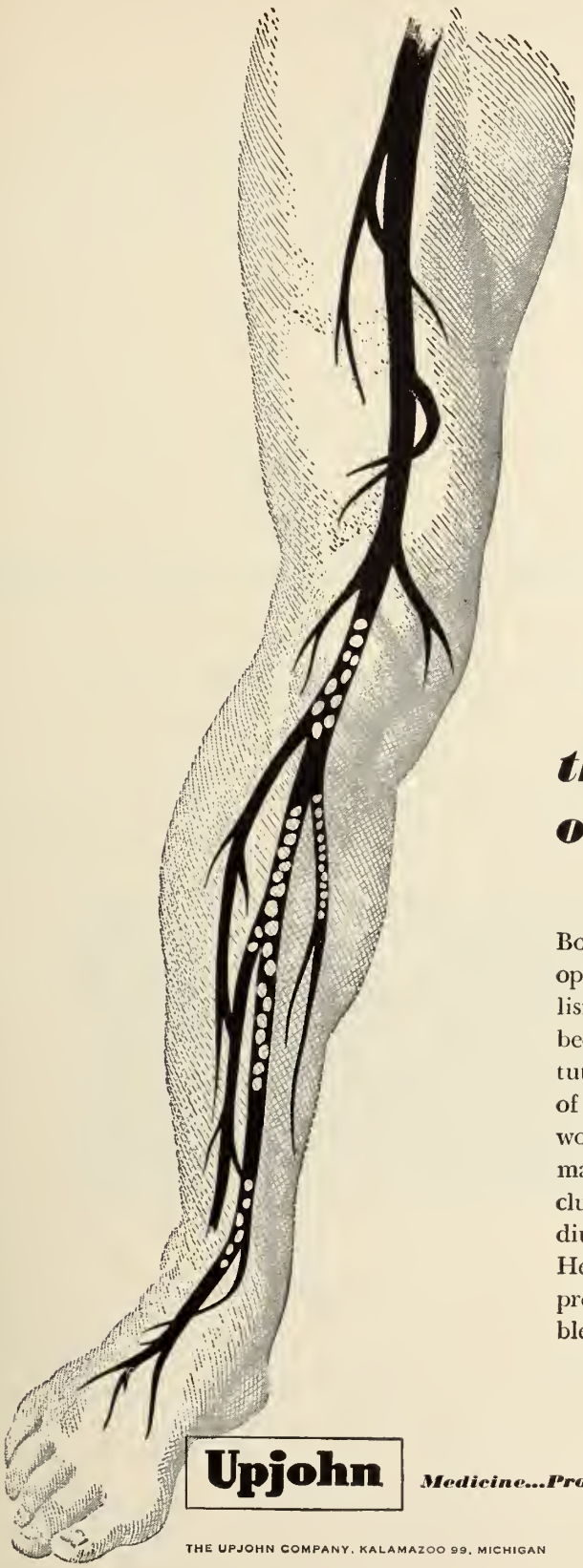
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Volume 47 AUGUST, 1950 No. 8

Scientific Articles

BRONCHIAL OBSTRUCTION DUE TO ENDOBRONCHIAL LESIONS

PAUL H. HOLINGER, M.D.
CHICAGO

INFLAMMATORY and neoplastic endobronchial lesions produce the same physical and roentgen findings which characterize the presence of intrabronchial foreign bodies.[1] Thus, a persistent wheeze and cough, an obstructive emphysema or an atelectasis may indicate endobronchial disease of nonspecific or specific inflammatory character, or a benign or malignant bronchogenic neoplasm. In this discussion the inflammatory and neoplastic lesions of the bronchial wall will be described and the pathologic changes in the lung they produce will be reviewed.

Inflamed, edematous bronchial mucosa may produce a partial bronchial obstruction with wheezing or obstructive emphysema, but localized or even diffuse mucosal swelling is more prone to cause atelectasis of a segment or a lobe through complete occlusion of the segmental or lobar bronchus. Such changes are seen not infrequently in association with acute respiratory tract infections and in acute asthmatic bronchitis. The mucosa in such cases is thickened, red and moist. The orifices of the segmental bronchi are puckered and the lumina visible beyond are narrowed or obliterated. Often thick white or yellow pus can be seen oozing through the orifice on cough or deep expiration and insertion of a small aspirator results in the release of a considerable quantity of the same material. The atelectasis resulting from the edematous, inflammatory obstruction produces a localized pneumonitis often mistakenly designated as a virus pneumonia or unresolved pneumonia.

If the bronchial obstruction and the infectious process beyond persist, bronchial wall destruction follows with bronchiectasis as the end result.[2] This sequence of events, often recorded following foreign body aspiration, indicates the etiologic relationship between bronchial obstruction and bronchiectasis. It indicates, too, the importance of early recognition of the nature of the process in order that proper means of shrinking the mucosa may be undertaken to permit drainage and reaeration of the affected lung. Time is an important factor since, in addition to the virulence of the infecting organism, the degree of bronchiectasis that develops is indirectly proportional to the duration of the atelectasis. Adequate drainage can be obtained by the frequent application of bronchoscopic sponges with adrenalin or 20 per cent cocaine Hcl, and by careful insertion of flexible aspirators into the affected bronchi. This syndrome of inflammatory bronchial stenosis has been known and recently repopularized as related to the right middle lobe bronchus, giving the so-called "middle lobe syndrome."[3] Atelectasis of this lobe is seen often because of compression of the bronchus by inflamed or calcified hilar glands, the latter associated with the presence of broncholiths in the bronchial wall.

The most frequent specific inflammatory processes producing endobronchial lesions are the various types of bronchial tuberculosis, simple inflammation and edema, ulceration with caseous exudate, granulomatous formations and healing stenoses. The tuberculous inflammatory process first involves the submucosa of the bronchi as an increased vascularity and swelling of the bronchial wall, resulting in diminution of the lumen. Later, the mucosal lining over the affected region of the bronchus sloughs, leaving an ulcer with a granulating base, usually designated as an ulcerogranuloma. The granulation tissue may increase in size and eventually occlude the lumen of the bronchus. Caseation of the surface granulations will give it a white or grey appearance, either sticky or flaky, depending on the amount of moisture in that particular region. When the acute inflammatory phase diminishes, the lesion begins to fibrose. The final picture is a partial or complete stenosis depending

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Presented at the Centennial Session, Missouri State Medical Association, St. Louis, March 26 to 29, 1950.

on the proportionate size of the bronchus and the extent of the bronchial disease.

From the site of origin the lesions spread along the bronchial wall toward the larger bronchi and finally involve the trachea. The stem bronchi may become completely occluded, resulting in massive atelectasis and suppuration of the corresponding lung. It is interesting to note that the left main bronchus is involved in slightly more than half of the positive cases, and the right upper lobe orifice will be seen to be affected in approximately 30 per cent. Ulceration of the trachea may progress upward as far as the glottis, involving particularly the anterior wall.

The exact mechanism of the progression of the disease along the bronchial wall is not certain, but it is probable that it travels in the lymphatics of the submucosa. The seeding of tubercle bacilli through the action of the purulent material on the mucosa may have some effect, but is probably of secondary importance. The disease may be arrested at any point in its course and, depending on the severity, will leave greater or less scarring in its path. Fibrosis and stenosis of the bronchus will be the end result and the fate of the lung tissue distal to the lesion will depend on the patency of the bronchial lumen when all activity has subsided. When these obstructive phenomena continue to stenosis, bronchietasis and lung abcess follow with the destruction of large areas of lung tissue. Fungus diseases such as aspergillosis, torula, actinomycosis blastomycosis, and the inflammatory changes, tumor formations and sclerotic deformities of rhinoscleroma[4] are other specific inflammations that develop endobronchial lesions and thus produce bronchial obstruction.

Benign and malignant tumors produce pulmonary findings characterized for the most part by their location, by the degree of obstruction and by their sojourn rather than by their histologic classification. Benign tumors of the bronchial wall such as polyps, lipomas, papillomas, fibromas and chondromas may give an identical clinical picture to that of a bronchogenic carcinoma.[5] However, in many cases, if there is a minimal degree of complicating bronchopulmonary suppuration, the benign character of the lesion is apparent by the lack of infiltration or destruction of the adjacent bronchial walls. Papillomas of the bronchi have the verrucous appearance of papilloma elsewhere in the body. Chondromas are notable because of their firm, smooth surface which is often hard enough to make removal of tissue for biopsy almost impossible. In addition, chondromas cause extensive bronchial deformity. Polyps, lipomas and fibromas of the bronchus are usually smooth and their presenting surface is generally that of a spherical obstructing mass, often pedunculated and therefore rather freely movable in the bronchus. While these benign tumors are not frequent, forceps removal or electroresection[6] may be utilized to eliminate the obstruction and reaerate the lung. Bronchial adenomas must be considered as special tumors, exceedingly slow growing, somewhat invasive in character. Their appearance through the bronchoscope is that of a smooth, round mass which is firm, freely bleeding and often covered with a smooth, vascular appearing membrane. Endoscopic removal is sufficient to cure the disease in approximately half of the cases. However, if there is local recurrence, if the tumor bleeds excessively on biopsy, or if there is lung destruction distal to the tumor sufficiently great to necessitate surgical intervention in itself, surgical removal of the tumor and of the area of lung it has obstructed is indicated.[7] Closely related to the adenomas but a distinctly different clinical entity are the cylindromas of the bronchus. These are malignant and, while they, too, are slow growing, they metastasize to the regional lymph nodes and to other areas of the body. Therapy here is entirely surgical, although palliative removal of obstructing tissue may be indicated if the position of the lesion indicates it to be nonresectable.

Bronchogenic carcinoma assumes many variable characteristics. The most common endobronchial form is the soft verrucose, bulky tumor obstructing a major bronchus or the bronchus to a lobe or a segment. It is red, friable, freely bleeding, and behind it lies atelectatic lung and bronchopulmonary suppuration in the form of bronchiectasis or lung abscess. The tumor may be covered with exudate, necrotic debris or purulent secretion which must be aspirated carefully before tissue is taken. Other tumors are polypoid in character with a mulberry-like appearance. Some carcinomas invade the bronchial walls submucosally or through the peribronchial lymphatics to produce an extreme induration of the bronchial walls far above the point of the complete bronchial obstruction, which was determined as the location of the lesion by physical and x-ray findings. Occasionally an ulcerative type of lesion is found with rounded edges and a necrotic base extending along the floor or wall of the bronchus. Such lesions are not often seen bronchoscopically because at this stage they produce relatively few symptoms which call attention to their presence. Bronchogenic carcinoma also may be found as a small thickening of the bronchial wall with no bronchial obstruction and no pulmonary findings physically or by chest x-rays. Such tumors metastasize extensively and death results from the widespread metastases rather than from the primary tumor. Only the postmortem examination reveals the apparently insignificant endobronchial lesion. Other bronchogenic carcinomas are collar-button in shape, with a partially obstructing endobronchial lesion and a large extrabronchial component which may so compress the bronchus proximal to the intrabronchial tumor that tissue for biopsy cannot be reached.[8]

Endobronchial metastases of carcinomas elsewhere in the body have been seen in three cases. These endobronchial tumors had produced all the

classical signs and symptoms of primary bronchogenic tumors and, therefore, must be considered in this discussion. The diagnosis was established by biopsy in each case, the tissue from the endobronchial metastasis duplicating the tissue from the original tumor.

Endobronchial sarcomas are relatively rare. However, lymphosarcoma, myosarcoma and the neoplastic tissue from Hodgkins' Disease have been found intrabronchially producing bronchial obstruction. The gross characteristics are identical to those of bronchogenic carcinoma, the differential diagnosis being established only through the histologic examination.

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COMPARISON OF MERCURIAL DIURETICS AND ROUTES OF ADMINISTRATION WITH SPECIAL REFERENCE TO THIOMERIN

WILLIAM J. ATKINSON, JR., M.D.
MOBILE, ALABAMA
AND
LEO V. MULLIGAN, M.D.
ST. LOUIS

SEVERAL REPORTS have appeared recently on the advantages of a new mercurial diuretic, Thiomerin.[2, 8, 9-15, 18, 20] This report is made because a fairly large series (226 patients) over a six months' period has brought forth more unpleasant side effects than have been recorded previously.

It has long been recognized that an occasional sudden, severe, and sometimes fatal reaction may result from the intravenous administration of mercurial diuretics. Since 1942, evidence has been accumulating indicating that these reactions may be due to direct toxic effects on the myocardium.[1, 4-7, 16, 17, 21-23]

From the St. Louis City Hospital and the Department of Medicine, St. Louis University School of Medicine, St. Louis. Clinic Director, St. Louis City Hospital (L. V. M.).
This study was made possible by the help and cooperation of Drs. William A. Knight, Jr., James G. Janney, Jr., John S. Skinner, Edward W. Czebrinski, Joseph H. Hardin, Theodore L. Bryan, Aaron Hendin and Frank F. Martin.
Thiomerin was furnished by Campbell Products, Inc., New York City.
We wish to express our appreciation to Miss B. J. Crim and Mrs. A. Darr for their help in the clinic, and to Miss G. E. Street for her aid in the preparation of this manuscript.

Leham[14] found the myocardial toxicity of Thiomerin in cats to be at least 160 times less than Mercuhydrin, previously considered the least toxic of the mercurial diuretics.

Lehman[16] found the myocardial toxicity of Thiomerin in cats to be at least 160 times less than after subcutaneous administration in albino mice, whereas other mercurials caused necrosis. They found that Thiomerin, Mercuhydrin and Mercuzanthin all gave an early inflammatory response after intramuscular injection in rats, and that the Thiomerin exudate was entirely resorbed, but that a marked fibroblastic proliferation resulted from the other two drugs.

Most authors have noted about equal diuretic effects with equal doses of either Thiomerin, Mercuhydrin or Salyrgan-Theophylline.[2, 9-13]

Herrmann et al[12] in a series of 200 patients, reported that "local reactions were negligible" after subcutaneous administration of Thiomerin. No side effects were noted in these or in fifty patients treated with intravenous Thiomerin. Bay[3] observed only occasional cramping abdominal pain for a few hours after injection of Thiomerin.

METHOD OF STUDY

Two hundred twenty-six patients were studied during a six month period. Two mercurials were compared at a time by giving them to the same patients on alternate weeks for from one to three months. If no reaction occurred after a test dose, 2 cc. were given each time. Reactions, weight changes and patients' preferences were recorded. It is realized that conclusions based on changes in weight are subject to error, but it is believed that differences in the drugs being compared should be evident in the average weight change in such a large series.

Thiomerin was received by air mail direct from Campbell Products, Inc. Both the dry powder and mixed solution were refrigerated at all times. The powder was never kept more than a month and was used within ten days after being made into solution.

LOCAL REACTIONS

Subcutaneous Thiomerin.—Local reactions to subcutaneous Thiomerin were of sufficient magnitude to cause considerable discomfort in 35 per cent of 140 cases (table 1). These reactions may be divided as follows: 5 per cent had severe local reactions, 9 per cent had tender lumps or nodules for several weeks after administration, and 21 per cent had an uncomfortable sore arm for from several days to a week. Necrosis did not occur in any patients. Minor discomfort such as temporary burning, stinging and soreness occurred in an additional 12 per cent of the 140 cases. Two thirds of the moderate to severe local subcutaneous reactions occurred with the patient's first dose of Thiomerin and the rest of the reactions were scattered throughout the three months of treatment by this route. Sixty-five per cent of those who had more

than mild reactions had subsequent reactions to subcutaneous administration. At least a part of this variation in response was thought to be due to variations in the drug since reactions were found to be more numerous with certain lots than others.

It appeared that reactions to subcutaneous Thiomerin were more frequent if the drug was given

Table 1. Local Reactions.

THIOMERIN	
A. Subcutaneous—total number treated	140
1. Local reactions causing considerable discomfort	35 per cent
a. 5 per cent severe	
b. 9 per cent sore lumps and knots	
c. 21 per cent sore arm for several days to a week	
2. Mild discomfort	12 per cent
B. Intramuscular in deltoid—total number treated	80
1. Considerable discomfort	12 per cent
2. Mild discomfort	10 per cent
C. Intramuscular in gluteus maximus—total number treated	100
1. Considerable discomfort	4 per cent
2. Mild discomfort	5 per cent
MERCUHYDRIN	
A. Intramuscular in deltoid—total number treated	86
1. Considerable discomfort	12 per cent
2. Mild discomfort	6 per cent
B. Intramuscular in gluteus maximus—total number treated	107
1. Considerable discomfort	4 per cent
2. Mild discomfort	5 per cent

into the subcutaneous fat layers than when given immediately beneath the skin or beneath the fat. Sometimes it was difficult to avoid the fat layers, and technics of subcutaneous administration were undoubtedly quite variable since injections were given by a number of different physicians in the clinic.

A majority of the patients who had local reactions were those with greater degrees of cardiac decompensation. Thus the status of the local circulation appeared to be a factor.

Intramuscular Thiomerin and Mercuhydrin.—Intramuscular injections were avoided in those patients reacting most severely to the subcutaneous test dose.

Little difference was noted in the per cent of reactions between intramuscular Thiomerin and Mercuhydrin. Considerable discomfort was experienced by 12 per cent of the eighty patients receiving Thiomerin in the deltoid muscle and mild discomfort by another 10 per cent. Mercuhydrin given in the deltoid muscle to eighty-six patients gave approximately the same per cent of reactions.

Intramuscular injections in the gluteus maximus caused considerable discomfort in 4 per cent of patients with either Thiomerin (100 patients) or Mercuhydrin (107 patients) and mild discomfort in another 5 per cent.

The patients who had local reactions to subcutaneous Thiomerin (except for a few of the most severe ones) were tested intramuscularly. Of these, 25 per cent had considerable discomfort in the deltoid muscle and 10 per cent had considerable discomfort in the gluteus maximus.

GENERAL REACTIONS

General reactions are presented in table 2. Little difference was noted except for a slightly higher incidence of nausea, diarrhea, and cramps in legs and abdomen with subcutaneous Thiomerin, and cramps with intravenous Salyrgan-Theophylline. In a group of patients treated at another hospital[19] where the dry powder form of the Thiomerin was not kept refrigerated (this is said by the manufacturer to be unnecessary) five cases of diarrhea with cramps were noted, and two of these were bloody diarrheas.

It should be noted that a few of the most sensitive patients were eliminated from the Thiomerin series after their subcutaneous reactions, and we

Table 2. General Reactions.

THIOMERIN	
A. Subcutaneous—total number treated (given first in the series)	140
1. Cramps	5 cases
2. Nausea	6 cases
3. Diarrhea	3 cases
a. Bloody diarrhea—1 case (later treated with different lots of Thiomerin by both I.M. and I.V. routes with no reactions).	
4. Fever	1 case
B. Intramuscular in deltoid—total number treated	80
1. Cramps	1 case
C. Intramuscular in gluteus maximus—total number treated	100
1. Nausea	1 case
D. Intravenous—total number treated	90
No reactions.	
MERCUHYDRIN	
A. Intramuscular in deltoid—total number treated	86
1. Cramps	2 cases
B. Intramuscular in gluteus maximus—total number treated	107
1. Cramps	1 case
2. Nausea	1 case
C. Intravenous—total number treated	93
1. Headache and weakness	1 case
SALYRGAN-THEOPHYLLINE	
A. Intravenous—total number treated	150
1. Cramps	5 cases

do not know whether they would have increased the per cent of Thiomerin reactions when other routes were tested.

COMPARATIVE EFFICACY

Although some patients repeatedly obtained a better diuresis and weight loss on one particular mercurial than with the others, the average changes for the entire group showed about equal results for equal doses regardless of the mercurial or route used.

As might be expected the subcutaneous route gave a slower, milder, more prolonged diuresis in comparison to the rapid diuresis produced by the intravenous route. Intramuscular routes gave results somewhere in between, with the gluteus maximus being more rapid than the deltoid.

DISCUSSION

Because intravenous mercurial diuretics may have direct toxic effects on the myocardium, it is desirable to give them by other routes. Not only might this help prevent the rare immediately fatal reaction, but also might reduce the theoretic possibility of further myocardial damage by the repeated effects of the drug. A fair number of the patients who could take subcutaneous Thiomerin without any local reaction stated a preference for it. It can be administered through a small needle with less discomfort, and acts more slowly, thereby allowing the patient time to get home before di-

uresis. If given in the afternoon it does not keep the patient awake as much during the night.

On the debit side are the large number of painful local reactions with subcutaneous Thiomerin, especially when 2 cc. doses are necessary. Some of these reactions seem to be due to a true sensitivity to the drug (possibly to the sulfhydryl group) and others to variations in lots of the drug and to the great care necessary in technic of injection. The possibilities of breakdown of the Thiomerin molecule if kept too long, or not refrigerated properly, bring up many problems in its handling from the time of manufacture until it reaches the patient. It may limit the economic purchase of larger quantities for clinics or hospitals. At present 10 cc. bottles are the smallest quantities of Thiomerin available and our experience would indicate that these should be used within two weeks after the dried form is diluted with water, even when stored in a refrigerator.

It would seem best at present always to test patients with 0.5 cc. doses of Thiomerin subcutaneously, and switch to the gluteus maximus muscle if local reaction occurs. Intravenous mercurials will still be necessary in some patients because of the discomfort caused by using other routes.

SUMMARY AND CONCLUSIONS

1. Subcutaneous Thiomerin is a desirable diuretic in patients who tolerate it without reactions, but reactions are more numerous than has previously been thought to be the case.

2. Preliminary testing with small doses of Thiomerin is important because of the large number of painful local reactions and occasional gastrointestinal symptoms. Part of these were due apparently to a true sensitivity to the drug, some to injection into the subcutaneous fat layers and some to variations in lots of the drug received. The status of the circulation appears to be a factor in the local reactions.

3. Reactions to administration in the gluteus maximus muscle were few. However, reactions with Mercuhydrin were about the same by this route, and Thiomerin was not thought to have any advantage, especially since it is more difficult to store and deteriorates with time.

4. A certain number of patients still will have to be treated by the intravenous route for reasons of comfort. Previous experimental work on animals would indicate that Thiomerin has less myocardial toxicity by this route than other mercurials. However, it must be avoided in sensitive patients who get systemic reactions to the drug.

5. Occasional patients consistently experienced a better diuresis after one particular mercurial, but the average changes for the entire group were about equal for equal doses regardless of the mercurial or route used.

Addendum: Since this study was completed near the end of 1949, a communication has been received from Campbell Products, Inc., the manufacturers of Thiomerin. They state that there have been many technical difficulties in the uniform manufacture and stabilization of this product, and that previously there have been variations in different lots, as we had concluded. However, they claim that recently the product has been stabilized. This should mean a decrease in the number of reactions and a further increase in its usefulness. Present results do indicate that the material is now much more satisfactory. Additional studies are being carried out and a subsequent report will be forthcoming. Caution is still advisable in using Thiomerin which has been on drug house shelves before late 1949.

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NEW ULCER DRUG SEEN AS PREVENTIVE OF SURGERY

Most persons with serious disability from peptic ulcer can avoid surgery by receiving treatment with a new ulcer drug, banthine, early tests with one series of patients indicate.

Clinical trial of banthine in 100 peptic ulcer patients is described by Drs. Keith S. Grimson, C. Keith Lyons and Robert J. Reeves of Duke University School of Medicine, Durham, N. C., in the *Journal of the American Medical Association.*

The synthetic compound, which is taken in tablet form, blocks the impulses of the nervous system which stimulate overactivity and overacidity of the stomach. It is available only on prescription by a physician and must be taken under medical supervision.

MANUAL REMOVAL OF THE PLACENTA

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Manual removal of the placenta has long been considered a major obstetric procedure. The major indications for manual removal are hemorrhage and a retained placenta. In one of the larger obstetric services it is done occasionally as a teaching procedure if the placenta is not delivered normally within twenty or thirty minutes. Dieckmann[1] has recommended that following a difficult breech delivery the lower uterine segment, cervix and vagina should be palpated and inspected for lacerations and ruptures. This should hold for all difficult obstetric procedures. Manual exploration of the uterus is synonymous with manual removal of the placenta. This too is an invasion of the uterine cavity immediately following delivery. No particular harm has been seen from these teachings. To clarify this belief several thousand obstetric cases were reviewed from the obstetric service of Research Hospital.

In 5,028 consecutive deliveries from January 1, 1944, to January 1, 1948, the placenta was removed manually twenty-four times. This is an incidence of one in 210 cases or 0.47 per cent. Aaberg and Reid[2] reported an identical incidence. The incidence usually given is about 1 per cent of all deliveries. Moldavsky and Soloway[3] reviewed the incidence of manual removal as far back as 1883. Between 1883 and 1918 figures range from 0.34 per cent to 1.8 per cent; from 1928 to 1940 between 0.3 per cent and 3.27 per cent. Since 1940 no report was found with an incidence above 0.83 per cent.[2, 5]

There was no mortality in this series. Many authors[3] show a mortality up to and more than 10 per cent. In the older reports the mortality ranges between 10 and 15.4 per cent, but since 1936 the highest mortality reported has been 4 per cent.[4] This is logical since intravenous glucose, plasma, blood transfusions and oxytocics have come into wider use; and since the present procedure is to perform manual removal before shock and excessive blood loss have endangered the life of the patient. It also may be pointed out that many of the patients that die are neglected, with other contributing factors associated such as unrecognized uterine rupture, hemorrhage, amniotic sac infection, intermittent systemic infection and toxemia.

There was no morbidity in this series as judged by the standards of the American Committee on Maternal Welfare. Many authors[3] report a morbidity up to 80 per cent in patients having manual removal, but they also add that manual removal did not appear as the chief cause for this morbidity. Factors that increase the morbidity are intrapartum amniotic sac infection, prolonged labor, tamponade of the uterus, difficult operative deliveries and postpartum hemorrhage. These reports of such high morbidity were largely of cases studied before the advent of the newer antibiotics. Undoubtedly these give a larger margin of safety.

Of the twenty-four cases reported, three received no antibiotic therapy, four received only ergotrate during the first two or three days postpartum, seven cases received one of the sulfa drugs, and ten cases were given penicillin prophylactically.

Intrapartum infection was not present in any of these cases.

Operative deliveries were not the cause of morbidity. This agrees with Aaberg and Reid[2] who state that delivery effected either by normal or operative procedures does not alter the morbidity following manual removal.

Uterine tamponade was not required in any of these cases.

The duration of labor was not studied. Several writers[2, 6] disagree as to whether or not this is a factor in causing morbidity.

Postpartum hemorrhage is one of the most common indications for manual removal of the placenta or manual invasion of the uterine cavity immediately following delivery. Odell and Hovis[5] state emphatically that procrastination during excessive bleeding is as radical and hazardous as interference in the presence of intrauterine infection. As long as obstetrics is practiced there will be death from hemorrhage, but it should not be due directly to the manual removal of the placenta. Several writers[2, 4] have shown that the incidence of morbidity rises with the degree of hemorrhage. Frequently physicians wait too long before manually removing the placenta or manually invading the uterus to find the cause of the excessive bleeding. Postpartum hemorrhage, whether due to uterine atony, overdistention of the uterus, lacerations, ruptures or retained placental fragments, should be investigated immediately. Several authors[4, 6, 7] show an increased incidence of postpartum hemorrhage due to the fact that partial separation of the placenta may occur with twins and an atony of the uterus develops from the overdistention. However, no such case was a factor in this series.

One third of the patients in this series had an admitted blood loss of more than 300 cc. These estimations are grossly inaccurate and definitely err on the low side. This study cannot substantiate or refute the correlation between morbidity and blood loss because of the inaccuracy of the estimations.

In reviewing this series of 5,028 cases eighty were found to have a third stage of labor longer than twenty minutes. Of these, many would have profited by an earlier manual removal of the placenta as evidenced by the facts that: (1) Eight had an admitted bood loss of 300 cc. or more, (2) seven developed endometritis in spite of adequate prophylactic antibiotic therapy, and (3) six needed blood or plasma or other supporting fluids. In this last group one developed profound shock; a day later she had a hemoglobin of 30 per cent. The recorded blood loss was 150 cc. Another patient had a hemoglobin of 43 per cent the day following delivery.

Presented before the Kansas City Obstetrical & Gynecological Society March 17, 1949.

Her blood loss was recorded as 400 cc. She received no intravenous therapy.

In this series of 24 consecutive manual removals sixteen had retained placentas. Various factors influence placental retention. Those noted in this series were hour-glass contractions of the uterus, a placenta incarcerated in a septate uterus, premature labor, manual removal in a previous gestation, pituitrin given during the first stage of labor to enhance its progress, and parity. Several of these factors demand comment.

Schwartz and Richards[4] report manual removal in a previous gestation as a factor in 15 per cent of their cases and they quote a Scandinavian author (Schie) who found that among the multipara 64.7 per cent had a history of previous manual removal. Authors[2, 6] disagree as to whether or not premature labor is a cause of placental retention. It may have been the cause in one of this series.

Parity is not a definite factor causing placental retention. Half of these patients were primipara and half multipara. This is in agreement with those who previously analyzed this point. However, uterine inertia in the mutipara following a long labor seems to be a factor according to Peckham.[6]

In these sixteen cases of placental retention, thirty-seven minutes was the average duration of the third stage of labor before the manual removal was completed. Sixty minutes was the longest third stage.

Turning momentarily to the series of eighty cases with a third stage greater than twenty minutes, sixty-two patients or 77.5 per cent had a third stage of less than thirty-seven minutes. Many of these and also those with a longer third stage would have benefited by an earlier manual removal as evidenced by their need for intravenous glucose, plasma, blood transfusions and antibiotics.

COMMENT

Greenhill[8] has stated that the evil consequences of manual removal of the placenta are usually due to procrastination. No attempt usually is made to remove a placenta manually until the blood loss is excessive. The patient's resistance is lowered and supporting intravenous therapy usually is withheld too long and this, too, invites trouble.

When a patient has a retained placenta and a sudden gush of blood appears at the vulvovaginal orifice, or steady bleeding is noted, a manual removal should be done promptly. A 300 cc. blood loss is sufficient to warrant investigation. To wait after this is to invite danger.

This investigation should be a routine procedure in each individual obstetrician's hands but he should have a routine to follow. Another dose of oxytocic is not the answer to this excessive bleeding.

In doing a manual removal the uterine cavity should be entered but one time only. The manuever should be done slowly, gently and deliberately to insure removal of the placenta in one piece. This being accomplished, the empty uterine cavity is combed with the fingers for any retained secundines or placental fragments that may have been missed. When the uterus is empty, an oxytocic is given intravenously. The hand stays in the uterine cavity keeping the uterus anteflexed until it clamps down. The hand is withdrawn when the uterus is felt to contract. If it does not contract, the uterus is packed immediately. Intravenous fluids are started and blood is drawn for typing and cross-matching; blood being available immediately should further trouble ensue. The patient has had inadequate prenatal care if her Rh factor is not determined prior to her admission to the hospital.

The uterus having been explored by one invasion only, the cervix and walls of the vagina are visualized, whether a cause for the bleeding has been found or not. Cervical lacerations or lacerations over the ischial spines frequently are the sites of profuse blood loss and must be ruled out in each case. Routine visualization of the cervix and walls of the vagina is recommended even in the absence of undue blood loss. Clitoral tears can also bleed considerably and this point should not be overlooked in the investigation.

When a placenta is delivered spontaneously, it should be inspected at once. If there is any doubt that it is not complete, a manual exploration should be done immediately whether the patient is bleeding or not. May I say again that the danger in manual invasion of the uterine cavity is because of the blood loss that lowers the patient's resistance and not from the invasion per se.

Manual removal of the placenta and manual invasion of the uterine cavity is practically harmless in uninfected patients but a grave and serious procedure in the infected ones. In view of this the danger of manual removal as an operative procedure has been exaggerated greatly.

CONCLUSIONS

1. Twenty-four consecutive cases of manual removal of the placenta are reported with no mortality or morbidity.

2. Factors that influence the incidence of manual removal of the placenta are postpartum hemorrhage, amniotic sac infection, prolonged labor, operative delivery, overdistention of the uterus, previous manual removal, use of oxytocics, premature labor and parity.

3. The newer antibiotics when used prophylactically have made manual removal of the placenta less dangerous.

4. Management of the third stage of labor when undue bleeding occurs is outlined.

DISCUSSION

EUGENE H. FERGUSON, M.D., Kansas City, Mo.: Dr. Wortmann is to be congratulated on his excellent paper. Much time was required to analyze this large series of cases. His criticisms of the case reflect good obstetric judgment and his conclusions are sound.

Prior to this, I had no idea concerning the frequency of manual removals of the placenta in my practice. Accordingly, I checked two years of my work at Trinity Hospital. In this period I delivered almost 1,000 cases.

The placentas were removed manually twenty-five times. I had one more manual removal in 1,000 cases than Research Hospital had in 5,000 deliveries. In other words, my percentage is five times that of Research Hospital. Such a situation made me analyze my twenty-five cases.

1. Two patients were transfused and the uterine cavity packed. One of these received two blood transfusions.

2. Only two patients had a blood loss of more than 500 cc., measured and estimated.

3. The majority of the patients lost about 300 cc. of blood.

4. Twenty of the twenty-five never had a temperature of 100 F. during the puerperium.

5. Only one patient was given penicillin.

6. Three received sulfa drugs.

7. One patient had a morbidity temperature but was released by the tenth puerperal day, apparently in satisfactory condition.

Even though my placental removal ratio is high, I believe that it is consistent with good obstetric care.

I disagree with Dr. Wortman that the uterine cavity should be entered only once. Personally, I reenter the uterus after removing the placenta manually. I can be sure then that no more pieces of tissue are present and that no rents have occurred in the uterus. One of the dangers of manual removal is in not completely evacuating the contents of the fundus. In my experience, I have been forced to remove more placenta in three cases that I can recall. Hence, I recommend the final investigation of the fundus after it is considered empty. Placental tissue left in the uterus invites serious difficulties.

I feel as Dr. Wortman does, that the Research Hospital supervisors have been inaccurate in recording only eight cases in a series of 5,000 as having a blood loss of more than 300 cc.

In conclusion, I believe that it is a much greater crime, obstetrically, to traumatize and punish a parturient woman in the third stage of labor by severe and vain attempts to express a placenta than it is to remove the after-birth manually.

Jacob Farney, M.D., Kansas City: I have seen two patients die of manual removal of the placenta. The first was in 1938, after a long labor, complicated delivery, preeclamptic toxemia and she died of infection. In 1938 they had just begun to use sulfa drugs, and some were used but she died from septicemia.

The other case was six years later; it was the assistant resident's first manual removal. He apparently ruptured the lower uterine segment. Just to show how easy it is not to recognize rupture of the uterus, I packed the patient the second time and the resident packed her the third time, when I felt she should have had a hysterectomy. He still didn't recognize the ruptured uterus and she died from hemorrhage from the ruptured uterus. This particular case was not done for blood loss but just because she had gone more than two hours in the third stage and, rather than submit her to a lot of trauma, a manual removal was done. Of these two cases, the first death was probably not due to manual removal, and the second was directly due to the inexperience of the operator.

Hugh Hamilton, M.D., Kansas City: Again there is the problem as to whether one is going to practice conservative obstetrics or whether one is going to be radically conservative. I say that because I feel that in many of these cases a shibboleth has been made of the word, conservatism, and physicians have become radical in an attempt to bend over backwards to be conservative. After all, the major problem of the placenta in situ, after the child is born, becomes that of blood loss. Thirty per cent of obstetric deaths are due to hemorrhage. Of this 30 per cent, 50 per cent occur in the postpartum period and the majority of those are due to mismanagement. It is an admitted fact that as the blood loss rises, so does morbidity rise from infection due to the patient's resistance being lowered. My old preceptor, Buford Hamilton, has always been known as a man of conservative practice and yet seventeen years ago he was advocating that no woman be put back to bed with the placenta in the uterus and I have seen no reason to decide that he was wrong.

Colson, within the last two years, published a paper wherein he reported a series of 283 consecutive cases in which they removed the placenta manually and prophylactically used antibiotic therapy with a zero morbidity in the whole 283 cases. So, if one will use, as Dr. Wortmann suggests, a proper aseptic technic in the management of manual removal, then it would imply that one can safely remove the placenta manually.

I do take issue as to the virtue of the uterine pack but I do not think that is germane to the topic. I think a uterine pack is a snare and a delusion. The blood is absorbed into a piece of sponge instead of seeing what is happening. It would appear that the proper technic would be, at any time that the placenta does not come away immediately or that there is an acute blood loss, immediately to remove the placenta under proper aseptic precaution, followed by a prophylactic usage of antibiotic therapy, complimented by the administration of citrated whole blood to equal the blood loss. In administering the blood, always overestimate rather than underestimate what has been lost.

Dr. Wortmann: I still hold the premise that invading the uterus should be done but one time only. Why, when one removes a placenta manually, should one take his hand out of the uterine cavity and out of the vagina and then put it back in and introduce more bacteria. The technic of single invasion is simple. When one gets the placenta removed, it can be cuffed down in the hand and slipped out over the wrist and the hand has not come out. Then one can go ahead and comb the inside of the uterus to get any placental fragments or membrane that might be left. Dr. Hamilton mentioned a man who did 283 consecutive manual removals without morbidity. In the last *American Journal of Obstetrics and Gynecology*, there is a report of a physician who delivered well over a thousand cases consecutively, manually removing the placenta in each case. I do not lean to that teaching; I think it is radical, but this author calls manual removal of the placenta a benign procedure. I am inclined to agree with Dr. Holter that the uterine pack acts as a foreign body. A pack also acts as a wick and upon observing the patient one can see from this wick whether the pack is being effective or not. Most cesarean section patients are packed routinely today at the Chicago Lying-In Hospital.

510 Prof. Bldg.

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HEAD INJURY: ITS COMMON SENSE TREATMENT

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CONFUSION and controversy have long reigned in discussions concerning the recognition and treatment of head injury. Such controversy, in many instances, has not been conducive to the logical handling of such cases by those in position of greatest responsibility, namely, the on the spot physician. It is therefore hoped that the following remarks, presented rather dogmatically, will be found to be of assistance.

By "head injury" is meant that combination of injury traumatically induced to the cranium and its contents, most notably and importantly, the brain. In civilian practice this injury is most frequently the result of vehicular accident. Such injury, for the most part, results from the application of slow velocity, blunt forces to the cranium and thereby differs somewhat from the high velocity penetrating wounds of military significance.

Estimation of the Injury.—In the vast preponderance of instances the existence of head injury is obvious to the first examiner. A rapid estimation of the devastation of injury must be made, not only from inspection of the cranium, but also by rapid examination of the body as a whole and the neurologic and vital signs. The state of consciousness is of paramount importance. This may be crudely estimated by the application of painful stimuli to the injured, as well as inspection of such vital reflexes as the corneal and the swallowing reflex, since these latter reflexes seem to be quite rugged and are found absent only in severe injury and consequently deep unconsciousness. Estimation of shock, in the usual surgical sense, is of next importance. This may be estimated by obvious evidence of blood loss and the classical signs of shock.

Before any treatment is instituted further estimations must be carried out, namely, the appraisal of coincidental injury such as fracture of the neck or long bones. Of first importance is the problem resulting from the application of blunt force to the cranium and this is the most commonly overlooked major complication. This is not an easy problem in the unconscious patient. Inspection and palpation of the cervical area, particularly posteriorly, should be carried out for evidence of: (1) contusion or ecchymosis, (2) misalignment, (3) preternatural mobility, (4) evidences of pain on active or passive slight motion. If doubt remains on this score the most gentle handling of the patient while manual traction is applied to the head is essential. Examination for fracture of the long bones is somewhat easier. Preferably such fractures should be immobilized immediately and temporarily, however crudely, before the patient is transported in any manner. Fractures of the flat bones and ribs usually cannot be ascertained with accuracy and may well await closer scrutiny.

Correction of Shock.—When shock exists the general precepts of its immediate correction holds. However, certain deviations from accepted principles must be applied when severe craniocerebral trauma exists. First, morphine is not to be used. The chief reason for this omission accrues from the fact that generally the patient is unconscious or semiconscious anyway. In addition, the respiratory mechanism is greatly sensitized and, usually, already depressed by head injury, consequently further depression is distinctly contraindicated and, finally, morphine by its pupillary modification, robs the observer of valuable neurologic signs of complications. When restlessness or pain or apprehension is a problem the best agent is codein, given in doses of about 1 grain (adults). Shock is best combatted by transfusions of whole blood. Other fluids are distinct substitutes in every sense of the word, albeit, better than nothing. If blood is not immediately available, plasma is quite useful. Other fluids should be given in slightly hypertonic concentration, such as 10 per cent glucose, preferably in Ringers or Hartmanns solution. Isotonic and hypotonic solutions should be avoided by reason of their tendency to increase the problem of cerebral edema.

The temporary immobilization of all recognizable fractures, as mentioned in the foregoing paragraph, will be of inestimable aid in reducing the continuance of shock.

Positioning of the patient may be important. Other things being equal, the horizontal or even head-dependent position, is preferable. Certainly if vomiting is in progress, the patient should be positioned on the side to obviate aspiration of gastric contents. If vomiting is not in progress it must be anticipated, even in the deeply unconscious patient. Another peculiarity of the cranially traumatized patient is the tendency, either immediately or latently, to drown in his own pulmonic secretions. Due to disturbances both of vascularity and alveolar permeability, the lungs may begin filling at any time in the acute phase of injury. Again, in this instance, positioning is important to secure the gravitational drainage of these secretions.

All the foregoing examinations and immediate treatments being accomplished, one is then in a position to consider the immediate surgical treatment.

Immediate Surgical Treatment.—Shock can not be combated successfully in the presence of continuing blood loss. Consequently, if the patient continues to lose blood by reason of scalp or facial lacerations these demand immediate attention, almost regardless of other injuries or the state of consciousness or shock. When surgical facilities are inadequate, immediate compressive bandaging and even the use of scalp tourniquet may suffice to stem the loss. However, immediate, thorough and meticulous surgical closure of the lacerations is by all odds preferable. In many instances anesthe-

Read before the County Medical Society Meeting of Ten Counties Surrounding Chillicothe, Missouri, in Chillicothe, Missouri.

sia is not necessary. However, if anesthesia is necessary, local infiltration is preferable in most instances. The scalp should be liberally shaved around the area of laceration for a comfortable distance. Following this, soap and water cleansing, using liberal quantities of sterile saline for flushing, is essential. This being accomplished, the choice of topical antiseptic is a matter of personal preference. The scalp and facial or facial lacerations then should be closed carefully and as exactly as possible. Even in the absence of blood loss and shock such lacerations should be closed immediately and meticulously. Debridement should be ultraconservative. Tissues of both the scalp and face are highly vascular and viable and will live even when presenting a rather distressing appearance. Consequently, nothing should be cut away which appears even remotely or skeptically useful. A slough later is better than wanton surgical sabotage. Scalp and face should be closed without drainage. It is best to avoid the use of buried sutures. In most instances this may be accomplished by the use of an overhead mattress suture which is entirely removable. The use of topical sulphonamides is of course controversial. In grossly contaminated wounds I frequently use them to the extent of light frosting of the wound before closure and after thorough debridement. Such agents should not be packed into the wound.

By prompt closure of such wounds and the subsequent application of appropriate sterile compressive dressings such as Elastoplast or Ace bandages, hemorrhage is obviated and secondary infection is discouraged. It is my belief that such wounds should be closed primarily even in those instances in which it is obvious that secondary and definitive surgical procedures will be necessary, as, for instance, in cases in which the escape of cerebrospinal fluid or brain tissue from the wound is obvious. Following these specific local surgical procedures attention may be directed to further optional investigations and treatments.

Optional Investigations and Treatment or Treatment.—The correction of shock, the immobilization of fractures and the closure of wounds having been accomplished, one is in a position to estimate the future management of the case. In many instances the foregoing may be all that is required to put the patient on the road to recovery. In other instances further investigations are in order for the ascertainment of the necessity of further definitive surgical treatment.

In grossly contaminated wounding the administration of tetanus antitoxin or preferably polyvalent antitetanus-gas serum, is advisable and should be done at this stage.

X-ray examination may now be desirable for several reasons. In those instances in which doubt prevails concerning the disposition of cranial fracture lines, the extent of depression of the cranial vault and, in circumstances in which cerebrospinal fluid is escaping from wounds or via the nose or ear, x-ray examination is desirable unless immediate transportation of the patient is feasible or expedient. Further, x-ray examination may be desirable on other accounts, most commonly as a prerequisite to more adequate reduction and immobilization of coincidental fractures. As a general rule it may be simply stated that exclusive of the conditions set forth, x-ray examination is usually entirely optional and in no instance should it be carried out for reasons of mere curiosity, or as a routine procedure unless it is distinctly anticipated that it has a direct bearing on the further management of the patient. Certainly x-ray verification of simple fracture is unnecessary and is too often secured to the detriment of the patient.

In cases in which definitive surgical procedures are anticipated, as will be discussed later, it is well to bear in mind another simple rule of thumb, namely, that such patients stand transportation much better at this stage than after major surgical procedures have been instituted.

It must be mentioned here that many occasions arise in which the existence of head injury is not obvious. When confronted with the unconscious patient under peculiar circumstances and in the absence of evidences of trauma, a nicety of differential diagnosis may be required. The common differential diagnosis, about in order of frequency is:

a. Apoplexy or other cerebrovascular accidents.
b. Acute alcoholism, with or without trauma.
c. Epilepsy, with or without trauma.
d. Diabetic or uremic coma.

It is not the purpose of this paper to discuss the differentiation of these morbidities other than to say all may be complicated by the usual "cart and horse" problem when falls are a feature of the onset. Appropriate laboratory examination, some detective work and common sense reasoning usually will suffice to straighten out the diagnosis in most instances.

The Management of the "Uncomplicated" Head Injury.—By "uncomplicated" head injury is meant the usual type of closed blunt head injury in which further definitive surgical treatment is neither necessary nor desirable. In the consideration of this class of craniocerebral injury controversy is most prevalent.

Discussion of the treatment of such cases revolves about five major topics as follows:

1. Position of the patient in bed.
2. The use of analgesics and sedatives.
3. The employment of spinal fluid drainage.
4. Problems of hydration and dehydration.
5. Maintenance of nourishment.

Position in Bed.—Considering that shock is no longer existent, fractures have been immobilized, wounds have been closed and pulmonary edema is no longer a factor, then the head-up or Fowler's position is considered desirable. By maintenance of the patient on a back rest at about 45 degree elevation of the torso the intracranial hypertension is reduced considerably and venous drainage of the intracranial vessels is facilitated. However, this condition does not admit frequent turning of the

patient from side to side as is desirable to counteract tendencies of hypostatic pulmonary phenomena and must therefore be altered several times daily.

Analgesics and Sedatives.—As previously stated, morphine is to be avoided. Codein remains the best all around drug for the alleviation of both pain and restlessness. I do not hesitate to use codein in the dosage of 1 grain hypodermically every two to four hours as required. Codein, however, does exert a profound influence in obliterating the cough reflex and consequently double vigilance must be directed toward pulmonary complications when its prolonged use is necessary. In general, the barbiturates and their close relatives are to be avoided as much as is possible. However, there are many exceptions to this rule since it is obviously better to employ adequate sedation than to observe a patient thrashing himself into utter exhaustion. In this group of drugs phenobarbital is my preference in that it seems longer acting and is devoid of many of the excitement features possessed by its cousins.

Paraldehyde is the favorite of many and rightly so since it possesses a great flexibility of usage and a comfortable margin of safety. Its disagreeable features of odor may be disregarded. My own prefence of employment is by the intramuscular or intravenous route. Most frequently from 4 to 10 cc. given intramuscularly will maintain fair sedation for several hours. Dosage must be estimated on the basis of the age and physique of the patient, together with the degree of restlessness prevailing.

Spinal Fluid Drainage.—In obscure instances in which the existence of trauma is not obvious, lumbar puncture may be mandatory for the purposes of differential diagnosis. The appearance of blood in the spinal fluid is a feature of a high percentage of head injuries. The absence of blood in the spinal fluid does not exclude head injury by any means. Conversely, grossly bloody cerebrospinal fluid is rarely encountered in the spontaneous types of cerebral vascular accident, with the exception of spontaneous subarachnoid hemorrhage, where its finding, by definition, is universally present.

As a method of prolonged treatment spinal fluid drainage remains controversial. I frequently employ spinal drainage as a method of checking for continuing hemorrhage; for the purpose of estimating the degree of intracranial hypertension, and because I feel in some instances the removal of blood from the lumbar theca and the consequent reduction of intraspinal pressure is beneficial. I do not consider lumbar puncture in the usual type of closed head injury, uncomplicated by space-occupying hemorrhage, as dangerous. Lumbar puncture in all instances should be carried out with the patient in horizontal position. Puncturing any patient for any reason even diagnostically or for the purposes of anesthesia in the upright position is dangerous. Whenever head injury or intracranial lesions of any type are merely suspected, the Queckenstedt maneuver should never be done. The safest rule of thumb to observe in lumbar puncture is to remove only that fluid necessary to accomplish the purpose of diagnosis or pressure reduction. The initial pressure should always be measured on a water manometer. The spinal pressure may be reduced safely to ⅔ or ½ of its initial value but more cerebrospinal fluid than this should not be removed as a therapeutic measure. Such spinal drainages may be repeated daily or as often as they seem beneficial to the individual patient. If the first spinal drainage does not appear to have influenced the patient favorably, then obviously it should not be repeated.

Dehydration. Hydration.—The brain being a singularly sensitive organ as regards its reaction to constitutional water balance, a brief discussion of this factor is important.

Cerebral edema seems to be the natural reaction of the brain to onslaught, traumatic or otherwise. In the usual case of head injury cerebral edema may be regarded as having its inception at the moment of injury and increasing in magnitude steadily for about three to four days following injury. The degree of edema and the rapidity of its accumulation varies, of course, with the mode and degree of injury. Consequently, other things being not to the contrary, it is advisable to pursue a course of moderate dehydration in all patients with head injury of sufficient magnitude to have produced unconsciousness of any degree.

Dehydration may be accomplished in several ways. In the order of their simplicity they are: 1) restriction of fluid intake; 2) use of hypertonic infusions; 3) use of oral or rectal hydrogogues; 4) use of oxygen inhalations.

It is my practice to use dehydration in moderation at least in the early acute (edema) phase of head injury. This is accomplished usually by simple fluid restriction and the use of solid diets. I prefer to limit an adult intake to from 1,500 to 2,500 cc. of fluid daily, depending upon the season, atmospheric conditions, temperature. Solid diets are preferable for the purpose of intake calculation.

The use of hypertonic solutions is of course controversial also. The most efficient intravenous dehydrating agent is serum albumen (human). This agent has the disadvantage of general unavailability as well as of excessive cost. It is without profit to anyone to reiterate the glucose-sucrose controversy. Glucose solutions have the advantage of universal availability and while admittedly poor substitutes for human serum albumen are useful adjuncts and substitutes when more forceful dehydration seems desirable. I discourage the use of 50 per cent glucose solution because of its tendency to overload the circulation and because its action, in some circumstances, may be unwarrantedly violent. It has the further disadvantage of obliterating the veins which, in drawn out cases, may be a factor of considerable inconvenience. My preference is for glucose solutions in the strength of 10 to 20 per cent in Hartmanns or Ringers solution. Such solutions, if used in the amount of 1,000 cc. of the former or 300 cc. of the latter dilution, daily, suffice

to dehydrate while simultaneously providing combustible glucose. The coincidental electrolytes serve to buffer against alkalosis or acidosis as the case may be, resulting from prolonged vomiting, starvation and other related factors. Glucose solutions in this dilution do not damage veins.

I avoid the use of oral or rectal hydrogogues as dehydrating agents simply on the ground that their use is unnecessary and serve only to convert a difficult nursing problem to an intolerably messy one.

Nutrition.—During the stage of acute edema, that is for the first three to four days following head trauma, nutrition in most instances may be justifiably ignored while more pertinent factors are being considered. However, for the long term case who may have nutritional problems on a basis of inability to chew or swallow due to coincidental injury or unconsciousness, feeding must be maintained either by nasal-stomach tube or by the intravenous route. Rectal feeding of long term cases may be generally regarded as unsatisfactory.

COMPLICATIONS OF HEAD INJURY

Head injury is often complicated by any one or any combination of the following circumstances, which are listed in the order of their urgency and therefore of their surgical importance:

1. Massive intracranial hemorrhage.
2. Cerebrospinal fluid fistula.
3. Depression, comminution or compounding of the skull.
4. Retained intracranial foreign bodies.

Intracranial Hemorrhage. Hematoma.—Classified on a purely anatomic basis there are roughly five types of intracranial hemorrhage possible, as follows: extradural; subdural; subarachnoid; intracerebral; intraventricular. Of these only extradural, subdural and intracerebral hemorrhages are of practical surgical import in this discussion.

Extradural hematoma is a circumstance of the greatest surgical emergency. Once the diagnosis of extradural hemorrhage has been confirmed, or in many cases merely suspected, operation should follow immediately.

For practical purposes and for the sake of clarity, middle meningeal hemorrhage may be considered the causation of extradural hematoma. Therefore, middle meningeal hemorrhage being arterial in source, the clinical syndrome develops with acute rapidity and demands urgent surgical intervention. The only other surgical procedures which supercede in urgency this circumstance are the control of massive external hemorrhage and tracheotomy.

The anatomy of the middle meningeal artery is such that rupture of this vessel usually occurs in the middle fossa of the skull near the point of its emergence through the foramen spinosum. As a result, a massive extradural clot comes rapidly to occupy the middle fossa of the skull.

Classically, such a circumstance is generally defined as describing the usual sequence of injury: unconsciousness, lucid interval, unconsciousness, neurologic deficit. Naturally, there is wide variation in the manifestations of this pathologic state.

However, as a rule, the injury required to produce rupture of the middle meningeal artery does produce unconsciousness initially of varying duration, usually quite short, that is, a few minutes. This is characteristically followed by a lucid interval, usually measured in hours, during which the patient does not exhibit alarming neurologic signs and perhaps only trivial symptoms. Then ensues the sequence which might be postulated by familiarity with the nature and location of the hemorrhage. The patient first may have headache of increasing severity followed shortly by clouding of consciousness and, finally, by progressive deepening coma. Coincidently, there is tendency for the homolateral pupil to become at first dilated and finally dilated and fixed. Simultaneously, if close observation is carried out, weakness of the contralateral face, arm and leg usually will develop in that order due to compression of the temporal lobe and lower end of the motor strip. Concurrently the general signs of intracranial pressure rise may be noted, such as deepening coma, bradycardia and abnormal fluctuations of the respiration and blood pressure. If added to this there is x-ray evidence of a fracture line crossing the appropriate meningeal groove and if there is external evidence of local trauma, the diagnosis is fairly certain.

Obviously not all cases will describe this classic course. As a general rule, however, it may be said that when enough of these features or criteria are present to incite suspicion, operation is safer than procrastination. Such cases are not to be "watched along," "followed" or "observed." They are to be operated upon, preferably by the most competent surgeon available on the spot. Consequently it is desirable that all physicians and imperative that all surgeons understand the general principles involved in the control and evacuation of middle meningeal hemorrhage.

Subdural Hemorrhage. Hematoma. Hydroma.—Subdural hemorrhage may be acute or chronic and differs from the foregoing in either case by being of venous origin and consequently slower in development. In most instances the source of hemorrhage is from emissary veins connecting the cerebrum with the longitudinal sinus. Anatomically, then, the site of hematoma accumulation is the parasaggital area over the convexity of the hemisphere. Since about 60 per cent of such lesions are bilateral, they will be considered as such.

Characteristically, here too, the classical history features the injury, unconsciousness, lucid interval, disaster sequence, but the time is different. In either acute or chronic subdural accumulation the unconsciousness, lucid interval and symptomatic sequence is slower than is the case in extradural hemorrhage and is measured in days in the case of the more acute hematomas and in weeks in the case of the more chronic ones. Acute subdural hematomas of massive proportions and of rapid development cannot always be differentiated

from extradural arterial hemorrhage, nor is it of any practical advantage to do so since the treatment of both is the same, namely, immediate surgical exploration. Consequently, the following remarks may be construed to apply chiefly to the more common chronic form of subdural hematoma.

By reason of the location and slowness of subdural hematoma development, somewhat different neurologic signs and symptoms may be anticipated. Often such neurologic signs are disturbingly vague.

The hemorrhage occupying the parietes, presumably of both hemispheres of the brain, the initial encroachment is made over the upper end and medial portions of the precentral and postcentral gyri. Consequently along with signs of general increasing intracranial tension such as headache, lethargy, nausea and vomiting, such objective findings as increasing papilledema and paraparesis may be in evidence. Such hematomas, contrary to the rule in extradural hematomas, may result from trivial or even long forgotten injury, which circumstance often results in diagnosis of brain tumor.

Obviously there is a considerable margin of safety in such lesions and therefore they do not constitute (except in the most acute form) the surgical urgency attending extradural hemorrhage. The operative approach is different inasmuch as bilateral exploration should always be carried out, and preferably through the parietal bossae about two and one-half inches lateral to the saggital suture in the adult. For practical purposes these two pathologic entities, hydroma and hematoma, are synonymous inasmuch as they are clinically, anatomically and physiologically indistinguishable, and yield to the same surgical attack.

In those instances in which the encountered underlying hematoma is solid and semiorganized, complete osteoplastic craniotomy with complete removal is required.

Intracerebral Hemorrhage.—This type of hemorrhage is extremely difficult of accurate diagnosis and cannot with accuracy be delineated from the foregoing in all instances. That, too, is of small import since the treatment for all is the same. Hemorrhages within the substance of the brain again may be of either arterial or venous source and therefore may develop rapidly or slowly. The resulting symptoms then will depend entirely upon their magnitude and location. It is my impression that more of these hemorrhages are elucidated by accident at the operating table and at the postmortem table than are actually diagnosed clinically. Their surgical management obviously requires more effort and skill than the foregoing.

Only a few words will be said about the remaining two types of intracranial hemorrhage. First, subarachnoid hemorrhage is extremely common in its association with trauma. As a rule it is self limited and does not require surgical intervention. Its presence may be assumed in any case of major head trauma.

In regard to intraventricular hemorrhage it may be said that this constitutes a situation of gravest import. It is not commonly seen in those head injuries destined to live. It is the most frequent accompaniment of transventricular penetrating wounds which are not considered in this paper. Operative procedures of the highest magnitude are required for its rectification.

Cerebrospinal Fluid Fistula.—Cerebrospinal fistula results as a consequence of compound fracture of the skull and laceration of the dura. It may therefore escape from the wound or via the nose or ear. Such escape is, of course, incontrovertible evidence of skull fracture. In this connection it may be said that the blood, issuing from the ear or even observable blood behind an ear drum, may be taken as deductable evidence of skull fracture even in the absence of x-ray confirmation. In many instances of moderate head trauma cerebrospinal otorrhea or rhinorrhea may, under proper management, cease spontaneously in a few days. If such cessation does not occur in a reasonable length of time, say from four to seven days, grave and unpleasant consequences in the form of meningitis may be anticipated. Therefore, persistent cerebrospinal fistulas constitute a surgical problem. This problem embodies, naturally, the location and subsequent surgical repair of the dural laceration, often a problem of great complexity.

For the initial treatment of such conditions the exhibition of antibiotics and chemotherapeutic agents coupled with active dehydration is required.

The position of election is, of course, head up on the back rest at about 45 degrees. Fluid intake should be restricted stringently, say in an adult under normal atmospheric condition to about 1,200 cc. per 24 hours. Penicillin seems to be the best all around agent to employ prophylactically, coupled with sulphadiazine in maximum dosage consistent with the program of dehydration being in force. As a useful adjunct it is felt that frequent spinal drainage is also useful, the pressure rule, as previously described, being religiously observed. Under such conditions, those fistuli which do not spontaneously cease in less than a week will best be treated by surgical intervention.

Depression; Comminution; Compounding of the Skull.—These three situations are for practical purposes inseparable and shall be discussed as one. Compound fracture of the skull, in itself, is of importance only in its relation to contamination of the intradural contents. Comminution in itself is of no importance. Depression of the skull is of importance in proportion to its extent, degree and location. By extent is meant the area of the depression and by degree is meant the internal displacement of the fragments. Obviously, depressions encroaching upon the motor or visual cortices are more important than those encroaching upon the distal frontal convolutions. However, in the latter case surgical adjustment is usually desirable for cosmetic reasons.

SUMMARY

A brief résumé has been given concerning the

recognition and treatment of the more common types of head injury, together with a discussion of the common complications requiring surgical intervention.

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FEDERAL AID THROUGH GRANTS-IN-AID AND SUBSIDIES

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In 1836 Andrew Jackson, the hard money man, was concluding his term as President, and Martin Van Buren, the Little Magician or Red Fox of Kinderhook, was elected his successor. At that time the states had a combined indebtedness of $174,000,000, resulting from the prosecution of extensive programs of internal improvement, while the federal government, on the other hand, enoyed a sizable surplus. The Congress decided to distribute a part of this surplus among the states as loans to help them meet their indebtedness. In three of four installments, $28,000,000 was distributed before the panic of 1837 shook the country. Although President Jackson signed the Surplus Distribution Act, he previously had declared himself as opposed to Congress becoming "the taxgatherer and paymaster" for state governments. He said, "It appears to me that a more direct road to consolidation cannot be devised. Money is power, and in that government which pays all the public officers of the states will all political power be substantially concentrated." He had deep feelings with regard to the relationship of the state and federal government. In his message to Congress in December 1836, he said: "If the necessity of levying the taxes be taken from those who make the appropriations and thrown upon a more distant and less responsible set of public agents, who have power to approach the people by an indirect and stealthy taxation, there is reason to fear that prodigality will soon supersede those characteristics which have thus far made us look with so much pride and confidence to the state governments as the mainstay of our Union and liberties." Jackson's troubled concern was not aroused by this incident alone; already some states were receiving material financial assistance from the federal government.

Probably one of the most troublesome tasks the first Congress undertook was to assist the states on their demand to eliminate the debts which they incurred in prosecuting the Revolutionary War. The federal government finally decided to assume the state debts to the amount of $18,271,800, and voted to grant federal assistance to the states to arm and equip state militia, to be succeeded later by the National Guard.

Even before the Constitution was adopted, it was decreed under the Articles of Confederation that a section of every township of the federal domain should be set aside for the maintenance of public schools. Later the grants for education were increased to two sections per township. Fourteen states entered the Union under this more generous endowment. The land was sold by the states in most instances and the money invested so that the interest only could be expended. Several states retain their endowment today; in one state at least the interest of the endowment is annually apportioned among certain school districts to be used for the promotion of educational facilities. These grants contained virtually no provision for federal supervision or control. The only stipulations were that the proceeds be used for some specific purpose such as the promotion of common schools or internal improvements.

The present program of grants-in-aid may be said to have originated in 1857. In that year Representative Morrill (of Vermont) introduced a measure donating land from the federal domain to each state "for the endowment, support, and maintenance of at least one college, where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts." The bill passed both Houses, but was vetoed by President Buchanan. In his veto message, he said: "Should the time ever arrive when the state governments shall look to the federal treasury for the means of supporting themselves and maintaining their systems of education and internal policy, the character of both governments will be greatly deteriorated." But this view did not prevail for long. Four years later—in 1862—the Morrill Act was passed. It has become the foundation for extensive programs of federal subsidy in the fields of agriculture, highway construction and forest protection. Since the depression of the thirties, the program has been extended to include public health, emergency relief, social security, public assistance and a train of other activities whose terminus is not in sight. The principle of federal grants probably is here to stay.

The right of the federal government to grant subsidies from general taxation has been challenged unsuccessfully on two occasions.

Arguments for and against federal aid, as presented by the Committee on Federal Grants-in-Aid of the Council of State Governments are:

ARGUMENTS SUPPORTING FEDERAL AID

1. Federal aid is a useful and flexible device for joining together federal, state, and local governments in common enterprises.

2. Federal aid is a desirable method of financing essential services which are beyond the means of state and local governments.

3. Federal aid serves to redistribute income and promote tax reform by permitting the use of progressive national taxation to support activities which otherwise would be financed through regressive taxation.

4. Federal supervision of aided programs has

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Presented at the Centennial Session, Missouri State Medical Association, St. Louis, March 26-29, 1950.

been an important element in improving state and local standards of administration.

5. Federal aid has been a substitute for direct national action in many fields, thus preventing greater centralization and actually strengthening the states and localities.

6. Federal aid does not lead to extravagance, since (a) two levels of government watch expenditures, thus providing a double check on extravagance, and (b) the cost of direct federal operation would probably be greater.

ARGUMENTS AGAINST FEDERAL AID

1. Federal aid is a device which permits the federal government to enter fields of activity denied to it by the Constitution.

2. Federal aid is spent for local rather than national purposes, thus leading to sectional jealousies and jockeying for special benefits.

3. Federal aid places an unfair burden on certain states in that the citizens of those states are taxed to support governmental services in others.

4. Federal aid leads to extravagant spending by both the federal government and the states because (a) special-interest groups exert pressure on Congress for appropriations, and (b) states are tempted to spend more freely in order to match available federal grants.

5. Federal aid leads to the distortion of state budgets and tends to destroy budgetary control.

6. Federal aid violates the doctrine that the government which spends the public moneys should be responsible for its collection.

7. Federal aid leads to centralization (a) by establishing federal direction, supervision, and control of local activities, and (b) by creating a vast, unwieldy, and expensive central bureaucracy.

8. Federal aid will eventually lead to federal monopolization of the taxing power, thereby destroying the most essential bulwark of local independence.

The proponents of federal aid assert that grants are desirable in one or more of the following situations:

1. Where activities have such significant interstate aspects that the federal government not only may, but should, support them through grants.

2. Where activities are so important and desirable that federal grants are justified for the purpose of stimulating state and local governments to develop programs in these fields.

3. Where the general welfare requires that certain essential activities of state and local government be supported at a satisfactory level of service.

A definition of federal aid appeared in the current *Reader's Digest,* which may be applicable at this point: "Federal Aid—A system of making money taken from the people look like a gift when handed back."

Particular interest of this audience lies in the grants-in-aid that the federal government is giving to health activities. The first such grant was the Chamberlain-Kahn Act of 1918, which subsidized the states in their efforts to control the venereal diseases. These grants were discontinued after two years because the states preferred to assume the responsibility themselves and do the work in their own way. In 1921, the Sheppard-Towner Act provided grants to maternal and child health programs. It was discontinued in 1929, in spite of strenuous effort to extend it. It was followed by the Social Security Act of 1935, the Public Health Service Act of 1944, and the National Mental Health Act of 1946.

The first extensive grants for health activities were made in 1937 when the Council of State Governments reports that approximately $13,000,000 was received by the states. In 1947, ten years later, this amount had grown to approximately $120,000,000. In that year extensive grants were made to the highways, education, agriculture, health, welfare and employment security. In amounts, only welfare and highways surpassed grants to health.

What is the point I am trying to make? You may reasonably ask, Why shouldn't the federal government subsidize the health activities? I am concerned over one obvious fact. With the acceptance of each grant, the state or community forfeits some of its individual authority and privileges to the federal agencies. The early subsidies and grants had a minimum of federal control expressed. It is unfortunate that the funds were not always used by the states for the purpose granted and their administration was sometimes exploited by interested politicians. Hence Congress felt the need of drafting more specific regulations and directions. In the health field, the subsidy program is still young and probably will be developed much further as time goes on. Contributing factors for the extension will be the states' shrinking limits in taxation and the inability to confine health problems to the boundaries of individual states. Cancer, tuberculosis and heart disease are national problems. Medical education is a national problem. States conduct schools, but the graduates are not limited to practice in the state in which the school is located, nor is it required that all the students come from that state. States without medical schools are, therefore, financially indebted to the states conducting such schools —and no adequate or fair way has been devised for the repayment of this interstate obligation.

My concern over extension of the grants-in-aid program, therefore, lies chiefly in the way the grants are administered. My quite real concern is that the federal government actually will take over certain state functions to which it makes grants. I think it should be realized that the fears expressed by Jackson, Pierce and Buchanan can be real fears today. American philosophy demands that individual initiative be encouraged and not restricted in favor of any bureaucratic declaration. It may be that I am unduly disturbed by my vision of the future development of these programs, but before *you* come to that conclusion I want to remind you that I have been in a position to witness literally hundreds of petitionings presented to the federal

government by individuals and groups of states. I do not think I am exaggerating the possibilities. Time and again I have seen this situation develop: People are eager to develop a project in their home states, but they can not arouse sufficient interest among the taxpayers to finance it. *Years ago*, they would wait until they had built up this necessary enthusiasm. *Now* they come to Washington and lobby for a federal appropriation; they feel that, armed with a federal contribution, they can go back home and induce the state to assume a financial share of the project. In other words, they use Washington as a brokerage house, willing to exchange some of their prerogatives as state individuals for federal financial assistance. Others seem to look upon Washington as a pawnshop where they can pawn some of their Constitutional rights and privileges for federal financial assistance or for the position of federal administrator of funds to be expended in the state. Some would use the federal government as a whip to force their state into sponsoring a financial program which the state is reluctant to undertake. Other interests would even go so far as to support a bill which gives the federal government authority to administer funds in certain portions of the state in opposition to the state's constitution. These people are not disturbed, as I am, over the price paid for such grants. While the federal control, as expressed, may be minimal at the start, experience shows that in too many cases it grows as the amount or number of the grants increases. In the history of grants, it is a rare exception for any to decrease to the point of elimination.

In the health field, not only are the grants increasing in size, but they are increasing in number. For example, prior to 1949 grants were authorized for venereal disease control, tuberculosis control, hospital construction, mental health and cancer control. In that year heart disease and water pollution control were added. The first appropriation for heart disease control was $500,000 made by the 80th Congress. The appropriation for 1950 was $16,000,000, and for this fiscal year the budget committee is being asked to appropriate more than $43,000,000. Mental health in 1949 was $8,600,000, and this year requests for appropriations have ranged from $26,000,000 to $34,000,000. Among the advocates for this enormous appropriation are eleven doctors. If this practice is to continue, I for one can visualize the time when the sum total of directives applied to the various grants of a community may afford a designing administrator an opportunity to direct that community's total health activities. Are not some of the state departments of health disturbed by the controls and directives which accompany subsidies they receive? Recently the Federal Security Administrator, addressing a conference of the State and Territorial Health Officers, exhorted them to organize their areas to support President Truman's National Health Insurance Program.

The federal government does not always develop these grants-in-aid programs or subsidy programs of its own initiative. Most of them are initiated by local physicians or interested groups who see only the particular venture in which they are interested and feel that they would not lose control by accepting federal aid; but the folklore couplet "Who pays the piper, Calls the tune" is here exemplified again. On a single day recently, there appeared at the House Appropriations Committee room twenty-seven physicians from wide areas of the United States, petitioning the committee to increase the appropriation for the National Institute for Mental Hygiene. Federal control of state activities, which so many dread and fear, more often follows a stimulus from the outlying districts rather than from the central government. As a corollary, therefore, the abolition of federal control must begin at home. It is conceivable that although Congress may not pass any of the national health bills, an alarming degree of federal control over the practice of medicine may be accomplished through the multiplication of grants-in-aid programs.

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AUREOMYCIN REDUCES CHILDBIRTH INFECTION POSSIBILITIES

Aureomycin is effective in lowering the possibilities of infection following childbirth, according to a report in the June 10 *Journal of the American Medical Association*.

A study on the use of the antibiotic in obstetric patients is presented by Dr. Joseph A. Guilbeau, Jr., Dr. Emanuel B. Schoenbach, Isabelle G. Schaub, A.B., and Doris V. Latham, A.B., of the Johns Hopkins School of Medicine and Johns Hopkins Hospital, Baltimore.

The normal uterus after birth contains a wide variety of bacteria which is potentially disease producing. Such infection may result in irreparable damage which can jeopardize future childbearing, the report points out.

Aureomycin hydrochloride was administered to 109 patients before delivery. Only thirteen (11.9 per cent) showed positive cultures two to three days after giving birth. In a control series of twenty-four patients who had uncomplicated, normal deliveries, positive cultures were reported in eighteen (75 per cent) cases.

The researchers also treated a number of acute childbirth infections during the study. They report:

"Aureomycin proved effective in various obstetric infections. Patients with acute and chronic infections of the urinary tract treated during pregnancy responded satisfactorily to therapy, although several relapsed when treatment was discontinued.

"Aureomycin is a desirable chemotherapeutic agent because it is effective after oral administration, it possesses a wide range of antibacterial activity and it is unassociated with serious toxic manifestations."

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Council on Pharmacy and Chemistry: New and Non-official Remedies, 1949, Xanthine Derivotives, Philadelphia, J. B. Lippincott Company, 1949, p. 323.

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ADRENALIN-PRODUCING TUMORS ARISING FROM PHEOCHROME TISSUE: THEIR CLINICAL MANIFESTATIONS, DIAGNOSIS, AND TREATMENT

RICHARD R. COHLE, M.D.
CLAYTON, MO.

In 1886 Frankel[29] reported finding at autopsy bilateral adrenal tumors and cardiac hypertrophy in an 18 year old girl who had had attacks of palpitation, headache and vomiting for three years. Although many of the usual criteria necessary for absolute diagnosis of an adrenal chromaffin tumor were not described in this paper, most authors writing on the subject concede that Frankel's was the first case of pheochromocytoma reported in the literature. Labbe, Tinel and Doumer[33] in 1922 gave the first complete clinical description, reporting the case of a 28 year old woman who was observed to have the typical paroxysmal attacks occurring with increasing frequency until she died in pulmonary edema after an illness of several months duration. At autopsy a tumor the size of a tangerine was found in the left adrenal gland.

Mayo[53] in 1927 reported the first case which was treated successfully by operative removal of a large tumor impinging on the upper pole of the left kidney, the patient becoming completely free of paroxysms postoperatively. The true nature of the tumor was not known by Dr. Mayo, however. In 1929 Pincoffs[34] reported a case which was correctly diagnosed preoperatively, treated by successful removal of a 150 gram tumor from above the right kidney, with the patient free of attacks and apparently cured during a seven year follow-up. This was the first case in which large amounts of epinephrine were demonstrated in the tumor by biologic assay of tumor tissues.

Finally, in 1937, Beer, King and Prinzmetal[24] from Mount Sinai Hospital, in a classic bit of research in clinical physiology, first demonstrated the presence of a pressor substance in the blood of a patient during a hypertensive crisis. In an attack in which the systolic pressure was more than 300 mm., 200 cc. of blood were removed from the patient and its pressor effect compared with that of the blood of a control subject by perfusion of a denervated rabbit's ear before and after perfusion with ergotamine tartrate. In view of the reversal of the pressor effect of the subject's plasma by ergotamine, it was thought that the pressor substance was almost certainly adrenalin.

Since that time the incidence of new cases which have been reported in the medical literature has increased remarkably. At the present time approximately 195 cases of this disease have been described.

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DESCRIPTION

The suprarenal gland springs from two sources. The cortex is mesodermal in origin; the medulla arises from ectoderm, being derived from ganglions of the sympathetic system. In the course of development these ganglia differentiate into sympathoblasts of the sympathetic system and pheochromoblasts of the chromaffin system. Sympathoblasts become ganglion cells, and pheochromoblasts develop into pheochromocytes, also known as chromaffin cells. Primitive pheochrome elements separate from the ganglions and migrate to the region of the cortex, aggregating in its center. In this process, sympathoblasts also are carried along with these pheochrome cells and give rise to the ganglion cells of the adrenal medulla. Moreover, some of the pheochrome cells are diverted from their course and instead of becoming part of the medulla become permanently associated with some of the prevertebral and peripheral sympathetic ganglions, referred to as small masses of medullary tissue, called paraganglions by Kohn.

With maturation of pheochromoblasts into pheochromocytes, these cells undergo a chemical change which makes them assume a brown color when treated with chrome salts, such as potassium bichromate. That is why they are called chromaffin or pheochrome cells. It is said that no other tissue in the entire scale of animal life gives this reaction.[25] These are the specific cells which produce adrenalin. The chromaffin system consists of these cells located in the adrenal medulla and in the paraganglionic tissue. Tumors which arise from these cells have been called sarcoma, angiosarcoma, perithelioma, carcinoma[25] and others until Alezais and Peyron[42] in 1908 described a chromaffin cell tumor arising from a paraganglioma in the sacrococcygeal region, and called all such tumors regardless of location "paragangliomata." In 1912 Pick[43] stated that these tumors should be named after the predominating cell type, the pheochromocyte. He suggested that neoplasms of this kind originating in the adrenal medulla itself should be called pheochromocytomata, and that the name paraganglioma be applied to those arising outside the gland, that is from paraganglions. This terminology generally has been adhered to since that time.

These tumors vary in size. The smallest weighed 3 grams; the largest 2,100 grams. Grossly the tumors are found to have a well defined fibrous capsule. Remnants of normal cortical tissues attached to the tumor but separated by a capsule are observed frequently. Hemorrhages within the tumor are seen often; necrosis and cyst formation are common. The tumor tissue itself has been described as soft and beefy red. On microscopic section the tissue consists of nests or cords of polyhedral cells separated by thin connective tissue stroma, rich in capillaries, giving an alveolar or trabecular appearance. MacKeith[16] compared this appearance to

that of "cirrhotic liver with hyperplasia." The cells are usually larger than those of the normal adrenal medulla, but show great variation in size and shape. A syncitial appearance may be seen. The nuclei also vary in size, tend to be rather large and are round or oval, contain a chromatin network and one or more nucleoli. Frequently there are large numbers of multinucleated cells. The cytoplasm is finely granular. Sections of the tumor fixed in a bichromate solution show brown pigmented granules or diffuse brown pigmentation in many, but by no means all of the epithelial cells. Usually hyaline inclusions are present in the cytoplasm. Sometimes there are seen groups of cells resembling lymphocytes. They may be arranged around vascular spaces giving pseudorosettes. The adrenalin content of these growths has been determined both by biochemical analysis and by bioassay, and has been found to vary tremendously. One tumor was found to contain a total of but 6.7 mg. of epinephrine; another was reported to contain 2,300 mg. of this substance.[13] The concentration of adrenalin per gram of tumor tissue has been reported as low as 0.12 mg. and as high as 20 mg.[25] A normal adrenal medulla contains about 0.4 mg. per gram of tissue,[16] and the total average amount of epinephrine recoverable from both normal human adrenals is from 2 to 8 mgs.

That pressor substances secreted may vary with different tumors was suggested by Mortell and Whittle[50] They reported a patient from whom they removed an orange sized cystic tumor. The cyst fluid was tested and found to have pressor activity similar to that of adrenalin. However, kept at 3 C., it retained its full potency of pressor activity for forty-eight hours, suggesting to these authors that "a relatively stable 'mother substance' (tyrosine?) rather than adrenalin itself may have been involved" in this instance. Others have supported this possibility.[17]

Pheochromocytomata have been referred to as "physiologically malignant and histologically benign" neoplasms. However, malignant chromaffin cell tumors have been reported but they are rare. MacKeith[16] found fifteen such tumors reported in the literature up to 1943, and a few more have been reported since then. The histologic picture is said to be so similar to that of the benign lesion that it cannot be used as a reliable criterion of malignancy. Spatt and Grayzel,[8] as well as McGavack et al,[21] state that the only indication of malignancy is the presence of metastases. Washington, Callahan and Edwards,[41] however, report a case found to be locally but not distantly invasive, and cite the work of others reporting two similar cases—all with typical adrenal-sympathetic syndrome and local malignant spread. King[27] in 1931 described a case of malignant pheochromocytoma of both adrenals with widespread metastases occurring in a 30 year old man with symptoms of a year's duration. Two types of cells were seen in the tumor, one characteristic polyhedral pheochrome cells as described before and the other anaplastic, ovoid or spindle-shaped cells, having only a small amount of cytoplasm which did not stain with chrome salts. The anaplastic cells were those found in distant metastases. They resembled the primitive cells of the adrenal medulla known as sympathogonien or neurocytes and probably were pheochromoblast cells.

Pheochrome tumors may occur anywhere in the body where chromaffin tissue exists, i.e., in any of the sympathetic ganglions, the cartoid body, the organ of Zuckerkandl (located at the bifurcation of the aorta), the coccygeal body, in the wall of the intestine, as well as in either or both adrenals. There have even been three cases reported with the neoplasm in the mediastinum.[38, 40] Of these, two were associated with hypertension and only one, the case of Maier,[40] was diagnosed during life. Maier removed a 28 gram pheochromocytoma found in the left costovertebral area just lateral to the upper portion of the descending aorta. The patient was well with normal blood pressure three years postoperatively. However, the great majority of hypertension-producing tumors are located in or near the adrenal glands. The commonest single location of benign lesions is the right adrenal, where nine out of sixteen proved cases were found by Belt and Powell.[25] Howard and Barker[23] collected a series of eighteen tumors, ten of which were found in the right adrenal. Other authors confirm this. Roughly, 10 per cent of these tumors are bilateral.[16] About 8 per cent are extraadrenal in origin, and there are multiple lesions in about 6.5 per cent of cases.[10, 30] About 10 per cent of all pheochrome tumors are malignant. Of these, oddly enough, most are bilateral; in several series from 60 to 100 per cent of the malignant lesions were bilateral. The commonest sites of metastasis are liver, lungs, bones and regional lymph nodes (retroperitoneal, periaortic). Less common sites of metastasis are brain, intestine, omentum, psoas muscle, skin, pleura, mediastinum and gingivae.[26, 27]

The incidence of pheochromocytoma is not really known. In Smithwick's series of 1,000 hypertensive patients subjected to lumbodorsal sympathectomy in which both adrenal glands were exposed, the incidence of this tumor was 0.5 per cent.[10] This is probably less than the actual incidence since a considerable number of these tumors are extra-adrenal in location. On the other hand, over an eight year period (1937-1944) thirteen primary growths were found in the suprarenals of 2,994 cases autopsied at the Glasgow Royal Infirmary.[31] Of these, eleven were adenomas of the cortex, and two were tumors of the medulla, one being a neuroblastoma and the other a pheochromocytoma, giving an incidence of 0.03 per cent of the latter in that series. That this figure is misleading is borne out by the fact that five patients with this tumor were seen within the next three years.

Cases are about equally divided between women and men. The age range is found to be from 20 to 50 years. However, a tumor was found in a 16 month old female infant,[20] and another in a 69 year old

man.[23] It is predominantly a disease of the white race, only two cases being reported in Negroes[41] and none in other races. That there may be a certain familial incidence was suggested by Calkins and Howard[30] who reported a girl and her aunt who had chromaffin tumors removed surgically. Reoperation was required in both for the removal of second tumors. More impressive still was the fact that the mother of the younger patient, who was the sister of the older patient, was believed to have died of the same disease. Patients with this neoplasm have come from all economic strata and have had varied occupations.

CLINICAL MANIFESTATIONS

The clinical manifestations of this disease may take any one of four distinct forms, as stated by MacKeith:[16] (1) recurrent paroxysms of generalized vasoconstriction accompanied by an extraordinary but transient hypertension, termed the *adrenal-sympathetic syndrone*; (2) chronic hypertension with renal and cardiac failure, resembling malignant hypertension; (3) Addison's disease from local pressure on the adrenal cortex, an uncommon picture, and (4) no symptoms at all.

I shall deal mostly with the first type hereafter because it is the commonest form of the disease, is most easily diagnosed and responds best to treatment. It is of interest, however, that patients with chronic hypertension due to this tumor are being found in ever increasing numbers in recent years, and a word will be said about this category in a later paragraph. A patient may give a history of repeated attacks occurring over as long a period as sixteen years.[44] The attacks may end fatally within a few months of onset, or even a few days[51] but, in most cases, there is a history extending over a period of several years. There frequently is a steady progression from mild attacks occurring only occasionally to, as time goes by, severe episodes coming several times daily. However, it is not infrequent to have attacks cease altogether for a period of time lasting as long as six, seven or even ten years.[45] The patient's blood pressure may be normal between paroxysms at first, only to rise to persistent hypertensive levels with superimposed paroxysms later on. The patient may have persistent hypertension when first seen by a doctor, especially if the symptoms have been present a number of years. This is observed in about half of the cases.[16] Early mild attacks may not be recognizable as such and may consist of transient malaise, headaches, nausea, digestive troubles, diverse pains, dizzy spells or palpitation. Without treatment severe paroxysms will develop and recur. Although the pattern of this disease varies considerably, usually in any one individual the paroxysms are of one type.

Factors precipitating attacks are numerous. Those coming before breakfast might be thought to be caused by fasting, but they occur just as commonly after meals. Constipation has been known to induce a crisis. Factors which are more understandable are exercise and emotion. Pain led to attacks in a case of MacKeith's;[16] drinking 1,500 cc. of water caused a fatal paroxysm in a case reported by Howard and Barker.[23] Attacks have been known to occur following head injuries,[51, 54] and emotional reactions brought on hypertensive episodes in a case of Kelly and his associates.[54] A crisis may occur at operation even before the tumor is handled. The most common of all precipitating factors is postural, such as bending the trunk,

Table 1. *Frequency Of Occurrence Of Principal Symptoms Of 18 Cases During Paroxysmal Hypertension.*

(Howard and Barker, 1937)

	NO. CASES
Blanched or mottled cold extremities	17
Palpitation	17
Nausea	16
Sweating	14
Vomiting	13
Headache	10
Pulmonary edema	9
Precordial pain	8
Distention of neck veins	5
Dilated pupils	4
Body tremors	3
Dizziness	2

combing the hair and the like. When trunk flexion provoked attacks, there were usually palpable tumors, not always located on the side to which the trunk was flexed. Steady pressure for two minutes to the adrenal region or to a palpable tumor may start a paroxysm immediately or after a few minutes. Other methods of initiating the hypertensive episodes include a sharp blow to the abdomen, warming the renal region, pressure on the carotid sinus and the cold pressor test. In half the cases described no special precipitating factors were recorded.[16]

Paroxysmal rises in blood pressure in patients experiencing no symptoms have been reported by four authors.[16] However, a suden generalized vasoconstriction producing signs and symptoms originating in many parts of the body constitutes the usual form of an attack. Occasionally the symptoms are limited to one area, such as recurrent epigrastic pain and vomiting or recurrent headache. A detailed history and examination may yield evidence of widespread vasoconstriction other than hypertension. MacKeith[16] gives the best clinical description of this syndrome, and it has been drawn upon freely in this discussion.

The patient may have an aura preceding the attack; it may be in the form of paresthesias or a vague malaise. The commonest first symptom is palpitation, but various feelings in the extremities such as a "hot feeling in the arm," "numbness," or "a prickly sensation similar to cramps," epigastric pain, sinking feeling or nausea, substernal constriction or cardiac pain, sneezing, throbbing in the temples, dizziness, headache or a sensation of shakiness or languor may usher in a crisis (table 1). As the attack proceeds, some or all of these symptoms may develop. A progression of symptoms upward from the feet may occur, with warmth or tingling of the feet followed by cramps in the calves and thighs, then by colicky abdominal pain, epigastric

pain with nausea and vomiting, angina like chest pain radiating to the arms, then fullness, choking or pain in the neck, throbbing in the temples, dizziness and, finally, severe headache. In almost all attacks nausea is described; vomiting in most of them. Epigastric discomfort is often noted. Profuse sweating is common. A sense of the hair pulling or standing on end has been described, and lachrymation and salivation have been known to occur. In sever attacks there may be hemoptysis from pulmonary edema; a state of shock or collapse can develop.

During a severe paroxysm, there will be pallor of the face, an anxious expression, or the face may be flushed, or blotchy, or it may alternate between pallor and redness. Coldness of the extremities is nearly always described; the hands are usually blanched but may be purplish. A moderate rise in body temperature is common. The pulse is often described as being weak or small. The rate may be fast or slow or vary during an attack. Irregularities of rhythm occur. The apical impulse is forceful, and may, as one observer said, "shake the bed."[16] The second aortic sound is loud and ringing; a transient aortic diastolic murmur may be heard at the height of the paroxysm. The systolic pressure frequently rises from 120 mm. to more than 300 in a matter of minutes, with the diastolic rising in proportion. In one case during a crisis the diastolic pressure was something over 300 mm., that being the highest reading on the manometer.[11] Throughout the paroxysm the pressure may reach quite high and quite low levels without corresponding symptom changes. There may be dyspnea or apnea. In about one third of cases there is an abdominal tumor palpable, though not always in the loins.[16] In some cases a kidney pushed down by the adrenal tumor is what is actually felt. Other common physical signs are swelling of the neck veins and dilation of the pupils.

During the attack there may be anuria or oliguria, with albumen and casts in the urine, and azotemia which may exceed 150 mg. per cent. Hyperglycemia and glycosuria are common. The white count is elevated due entirely to lymphocytes, which may increase by from 25 to 30 per cent.[46] The serum proteins rise slightly as do the blood calcium and potassium. The hyperpotassemia is said to be of some diagnostic value during a paroxysm. In a case of Blackwell et al[31] the serum potassium rose to 33.5 mg. per cent (blood pressure 265/155 mm. Hg.) during a hypertensive crisis, falling to 24.6 mg. per cent (blood pressure 120/70) in the normal interim. D'Silva[55] in 1934 showed clearly that the intravenous injection of adrenalin (in cats) is followed quickly by a rise in serum potassium, with a subsequent moderate afterdepression of the potassium level due, he thought, probably to increased insulin secretion stimulated by the expected transient hyperglycemia. The presence of large quantities of adrenalin in the blood during a hypertensive crisis has been demonstrated biologically by Beer, King and Prinzmetal;[24] and by chemical analysis, Strombeck and Hedberg[36] reported an increase of 1,000 times the normal adrenalin content in the blood during an attack. Electrocardiographic findings are variable. Auricular premature beats, runs of auricular and ventricular tachycardia and sinus bradycardia with beats arising alternately from the sino-auricular and auriculoventricular nodes have been reported. A rapid arrhythmia during operation has been seen more than once. QRS slurring and left axis deviation are recorded. The T waves may be high, flattened or inverted in standard leads I and II.[16, 47]

These attacks last a matter of minutes, hours or days; commonly they last from one to two hours. The end of the attack is marked by sweating, flushing of the face, and a fall in blood pressure to normal. After the paroxysm there is frequently a feeling of extreme prostration lasting from a few minutes to several hours. Headache usually persists for some time.

Many patients enjoy good health between attacks. Those with symptoms may have weight loss, anemia (mild), dyspepsia, constipation; occasionally diarrhea, vomiting and exertional dyspnea. A persistently elevated blood pressure is found in about half the cases. In one third of instances there is a palpable abdominal tumor.[16] Lassitude or insomnia are seen; anxiety is surprisingly rare. Occasional findings are exophthalmos, tachycardia, moist skin, dilated pupils, cardiac enlargement with systolic murmurs or accentuated aortic sounds. In the series of Howard and Barker,[23] arterial changes in the fundi such as sclerosis and hemorrhages were present in seven of eighteen cases. Six of these seven cases were more than 37 years old. There was no correlation between the height to which the blood pressure would rise during attacks and the presence of retinal changes, nor between the latter and duration of symptoms. However, it was found that six of the seven cases with retinal changes had persistent hypertension between paroxysms. It should be pointed out that in this series of eighteen cases, eleven had persistent hypertension of some degree, and in only six of these eleven patients were there eye-ground changes. Electrocardiographic changes between attacks are present in about one half to two thirds of cases. The usual abnormalities are left axis deviation and diminution or inversion of T waves. Other findings reported are large P waves, sinus tachycardia and lengthening of the S-T segment.[16, 49] In the blood of a patient between paroxysms Strombeck and Hedberg[36] found adrenalin content to be thirty times greater than normal, indicating continuous secretion by the tumor.

Pheochromocytoma producing chronic hypertension is an entity of increasing importance. Cases of this sort are probably misdiagnosed far more frequently than those with paroxysmal symptoms. Green[49] in 1946 made an interesting study of fifty cases selected from the literature and one of his own. His criteria for selecting cases were adequate clinical or pathological data; criteria for chronic

hypertension were minimum systolic blood pressures of 140 mm. Hg. and minimum diastolics of 90 or 95 mm. Hg. Of this selected group, only fourteen cases showed intermittent hypertension, whereas a majority, thirty-seven, were chronically hypertensive when first seen or became so while under observation. Conclusions drawn from this study were that: (1) Unless terminated by operation or death, hypertension produced by pheochromocytoma tends to become chronic and to be associated with secondary changes in the cardiovascular renal system. (2) The tendency mentioned is the result of continued direct action of the angiospastic agent involved. There was no evidence suggesting that a renal mechanism played a role in these changes, or that the changes were self-perpetuated with the onset of vascular sclerosis. In other words, uniformly following removal of the adrenalin-secreting tumor, there was a fall in blood pressure to normal or near normal levels and a regression of cardiovascular renal abnormalities, showing that "the development and persistence of chronic hypertension in pheochromocytoma are directly dependent on the continued action of the angiospastic agent produced by the tumor." (3) Despite the resemblance between chronic pheochromocytic hypertension and idiopathic hypertension, the angiospastic agent of the latter is not necessarily epinephrine.

The clinical features of malignant tumors of pheochrome tissue differ from those of the benign lesions only in that many of the malignant neoplasms do not show hypertension, either persistent or paroxysmal. In such cases the diagnosis may be suspected only after a biopsy is taken from skin or liver, or if routine pyelograms show a suprarenal mass.

There are two clinical manifestations of this disease which deserve further comment. One is the frequent presence of an elevated basal metabolic rate. Commonly it is from plus 40 to plus 60 and associated with a fine tremor of the hands, exophthalmos, nervousness and weight loss. The basal metabolic rate may be normal, however, and in five patients in a series of eighty reviewed by Snyder and Vick,[11] the rate was normal even during a hypertensive episode. Another interesting finding is the frequent occurrence of glycosuria, hyperglycemia and a diabetic type glucose tolerance curve. There have been several cases recorded of patients being treated for severe diabetes with large doses of insulin, who were completely cured of their diabetes as well as their hypertension after the successful removal of a pheochromocytoma.[2, 17, 49]

This disease has been reported in six children of less than 13 years up to 1947—one an infant of 16 months, and the other five between the ages of 10 and 12.[11] The signs and symptoms do not vary greatly between the children and adult cases, though sustained hypertension and multiple tumors seem to be somewhat more common in children.

DIAGNOSIS

The diagnosis of pheochromocytoma is dependent most of all on a high index of suspicion for this disease by the clinician. In any hypertensive patient the presence of an adrenalin-producing tumor should be considered as an etiologic agent until it has been ruled out by one or more of the simple tests about to be described. In particular should this diagnosis be entertained if the patient's symptoms and hypertension are paroxysmal or episodic in character. In such cases it is imperative, of course, to observe the patient during an attack for the purpose of making diagnostically important observations. In the case of chronic hypertension, the triad of "hypertension, hyperglycemia and hypermetabolism"[37] should suggest pheochromocytoma to the alert mind.

The first clinical test for establishing the presence of a pheochromocytoma, other than inducing an attack, was suggested by Roth and Kvale[15] in 1944. They studied the results of histamine injected intravenously on the blood pressure of four groups of patients: normal controls, hyper-reactors to the cold pressor test, hypertensives and patients suspected of having pheochromocytomata. A positive response to the test was obtained in only three cases—all in the fourth group of four persons suspected of having the tumor. All four patients in this group had laparotomies, and a pheochromocytoma was found in each of the three cases with a positive histamine test. No tumor was found in the fourth case in whom a negative response to the test was obtained. Later[28] these authors reported two more patients, the second of whom had persistent hypertension with edema of the optic disks. The result of the histamine test in this patient was regarded as negative because the increase in blood pressure level after the injection of histamine did not exceed the increase in blood pressure during the cold pressor test. The false negative result obtained in this case was attributed to the relatively small amount of epinephrine (62 mg.) contained in the tumor. They felt that it was probably "incapable of secreting sudden explosive charges of epinephrine because it was secreting epinephrine continuously."

Cahill[1] ran into difficulty in obtaining results which were strongly suggestive of being positive in patients that were psychoneurotic with hypertensive crises. The rise in blood pressure obtained, however, was slower and more sustained than that produced in patients with the tumor. These patients subsequently were found at operation to be free of such growths. This test has now been used by numerous investigators and has been found, in general, to give safe and satisfactory results. As described by Roth and Kvale, the procedure is as follows: the patient is placed in the recumbent position for thirty minutes or until the blood pressure and pulse are at basal levels. The sequence of events to be expected is explained to the patient ahead of time to rule out psychic stimuli. With

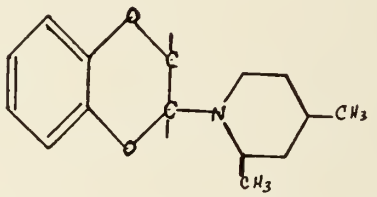
the blood pressure cuff on one arm, 0.05 mg. of histamine base in 0.5 cc. of normal saline solution or 0.025 mg. in 0.25 cc. of saline solution is injected intravenously into the opposite arm. Blood pressure readings and pulse rate are recorded at intervals of one minute for from ten to fifteen minutes after injection. A positive result is obtained when a definite attack is produced by the injection of histamine and a blood pressure rise of approximately 100 mm. more than the elevation produced by the cold pressor test is obtained. Ladue, Murison and Pack,[6] speculating on the reason for the reproduction of an attack by histamine which actually is an epinephrine antagonist in its effect on small blood vessels, reasoned that the release of adrenalin from a pheochromocytoma may be brought about by the dilating action of histamine on the arterioles and capillaries of the tumor with resultant outpouring of epinephrine because of increased blood flow through the tumor tissue. They also state that whether or not histamine may have a direct action on the tumor cells as it does on the chief cells of the stomach cannot be affirmed or denied.

Feeling that there was a definite element of danger in producing an uncontrolled paroxysm of hypertension when using the histamine test, these same authors[6] decided to try a different adrenalin secretion provocative which would produce a similar striking positive response, but after which the level and duration of the blood pressure rise produced could be controlled by a change in the patient's posture, namely, tetraethylammonium bromide. In a patient from whom a proved pheochromocytoma was later removed at operation, the reaction to the intravenous injection of 0.025 mg. of histamine in normal saline solution, 400 mg. of tetraethylammonium in solution, and 2 cc. of normal saline solution as control were compared. After the injection of histamine a typical attack with a rise in systolic pressure of 120 mm. developed, the blood pressure returning to normal in five minutes. After the injection of tetraethylammonium, a similar rise in blood pressure occurred and the elevation lasted fifteen minutes. Most remarkable, however, was the dramatic decrease in blood pressure when the patient changed from a supine to an erect position, the reading falling from 230/125 to 95/80. The injection of 2 cc. of normal saline solution produced no detectable response. These investigators believe that the controllability of the response to the latter test makes it definitely of more value as a diagnostic procedure. Roth and Kvale,[28] however, state that tetraethylammonium chloride failed to produce a paroxysm of hypertension on two occasions in a patient known to have a pheochromocytoma. The action of tetraethylammonium is to produce a block of the automatic ganglia, resulting in a release of vasoconstrictor tone. Ladue and his associates explain the rationale of the results produced by tetraethylammonium in patients having this tumor as follows: if an excess of epinephrine were constantly present in the patient's circulation, inhibition by tetraethylammonium of depressor mechanisms under the control of the sympathetic ganglia would result in a sudden increase in blood pressure. Also, vasodilatation and increased blood flow in the tumor as produced by a block of autonomic ganglia or by direct effect on the arterioles of the tumor might cause an outpouring of adrenalin into the peripheral circulation.

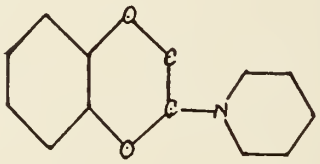
Guarneri and Evans[35] have reported the use of mecholyl bromide in doses of 25 mg, subcutaneously, producing a rapid rise in blood pressure with the associated paroxysmal symptoms similar to the results of histamine injection, with a return to normal in from fifteen to twenty minutes in patients with this disease. However, this test has not gained widespread popularity because of the side reactions of mecholyl which may occur.

Goldenberg, Snyder and Aranow,[10] in 1947, approached the problem of diagnosis from a different point of view. They decided that if the hypertension in this disease was caused by circulating epinephrine, it would be abolished or significantly decreased by the intravenous administration of adrenolytic compounds. Hypertension due to other causes would be uninfluenced by these drugs. Their thought was subsequently borne out in fact. The drugs they chose—the benzodioxanes—are indeed adrenolytic, not sympatholytic, and thus will not significantly influence so-called essential hypertension (fig. I). The adrenolytic property of these compounds is thought to be at least partially due to competition for receptors by structurally similar compounds. Because of their structure these drugs also have a sympathomimetic action which

FIGURE I



(2,4 dimethyl piperidyl) methyl benzodioxane -- 1164 F



Piperidylmethyl benzodioxane -- 933 F

may be demonstrated if they are given in the proper dosage to the unanesthetized animal. Of the large number of benzodioxanes first investigated by Fourneau and Bovet,[39] two piperidyl derivatives 1164F and 933F were chosen for study. It was found by experience that the optimum method of performing the test was to give the drug in a 1 or 2 per cent solution intravenously over a full two-minute period, preferably through a three-way stopcock attachment so that an intravenous infusion of normal saline solution could be started before the test was begun and so eliminate the possible psychic effect of a venipuncture at the time of the injection of the drug. Optimum dosage was 10 mg. of 933F or 30 mg. of 1164F per square meter of body surface, as calculated from the nomograms used in basal metabolic rate computations when height and weight are known. A basal blood pressure level was established and, after the injection, the blood pressure was recorded at one half minute intervals for the first five minutes, and then at one minute intervals until the blood pressure returned to normal. This usually occurred in about fifteen minutes. The duration as well as the magnitude of the blood pressure drop obtained was considered in the interpretation. A positive response to the test was evidenced by a fall in systolic and diastolic values of from 40 to 60 mm. Hg., reaching preinjection levels only after from fourteen to sixteen minutes. Normal patients, patients with pheochromocytoma postoperatively, and especially patients with "essential hypertension" frequently show a slight rise in their blood pressure after injections of the benzodioxanes. Occasionally a diphasic response would be obtained in one of the latter groups, but when the blood pressure fell, it was always a slight fall lasting only from thiry seconds to two minutes. This test is safe and reliable. There have been no reports to my knowledge of false negative or false positive results or of reactions due to the benzodioxane compounds themselves when used in this dosage.

Spear and Griswold[5] in 1948 reported on the use of dibenamine hydrochloride in a test for hyperadrenalemia. In the dosage used dibenamine was said also to be adrenolytic, not sympatholytic in action. They gave 7.0 mg. per kg. of body weight in 300 cc. of 5 per cent glucose in normal saline solution intravenously over a period of one hour. The blood pressure was found to drop to normotensive levels within two hours, with associated disappearance of symptoms such as headache, sweating, palpitation and the like. The blood pressure remained normal for about twenty-four hours and then would rise to pre-injection levels or paroxysms would recur. However, the relief of symptoms and sense of well being persisted up to seventy-two hours after injection. The characteristic rise in blood pressure with the administration of histamine intravenously obtained prior to injecton of dibenamine failed to occur when given at six, thirty and forty-eight hours after giving the dibenamine. From the results of these experiments the possible use of dibenamine therapeutically preoperatively was suggested to these authors.

The demonstration of a pressor substance in the blood of a patient manifesting the adrenal-sympathetic syndrome during a crisis as a diagnostic procedure has been performed satisfactorily by Beer, King and Prinzmetal,[24] as previously noted. However, this method of diagnosis is fraught with difficulties and is not feasible for the ordinary laboratory. In view of the other simple and reliable methods now available it is not considered a useful test.

The visualization of a tumor mass by roentgenographic methods is an important diagnostic procedure. In some cases with a large tumor a shadow may be seen on a flat plate of the abdomen. Sometimes calcification in the tumor may bring out its shadow. Not infrequently, pyelograms may show displacement of the kidney downward by the tumor mass and, in some, a flattening of the upper pole of the kidney when the tumor is within the adrenal.[1] In the eighteen cases studied by Howard and Barker,[23] the location of the neoplasm in eleven was said to be definitely detectable by radiographic means. The use of perirenal air insufflation in the localization of small tumors of the adrenal is stressed by Cahill and Aranow[1] because the site of such lesions cannot be identified by any other method. When the tumor is outside the adrenal there is difficulty in outlining it with air and determining its location. Cahill[1] states that in several cases in which the tumors were in ganglia near the aorta and the fascial planes were under pressure from tumor growth, the failure of air to infiltrate through those fascial planes suggested the site of the tumor. It might be added that Cahill is the foremost proponent of perirenal air insufflation studies and, though his results apparently have been excellent using this method, many other workers in view of the well known risks involved, have elected not to attempt this method of diagnosis. It also might be added that a respectably large number of cases have been operated on on the wrong side first when air studies were not done. When the tumors were intrathoracic[38, 40] they were seen clearly. Because of the possibility of intrathoracic tumors, it is recommended that all cases under consideration have investigative chest films.

DIFFERENTIAL DIAGNOSIS

In making the differential diagnosis, there is no problem in the face of a typical history and the observation of an attack of paroxysmal hypertension with the usual associated phenomena, especially in the presence of a palpable abdominal tumor. When attacks are induced readily by one of the ordinary ways and when one or more of the established reliable tests for pheochromocytoma is positive, the diagnosis is confirmed. Hatch, Richards and Spiegl offer one of the most complete groups of diagnoses to be considered, listed in the

order of decreasing likelihood in table 2.[3] In considering these diagnoses, one must remember that these are adrenalin-producing tumors and the signs

Table 2. *Differential Diagnosis In Cases Of Pheochromocytoma.*

(Hatch et al, 1948)

Likely	*Unlikely*
Essential or malignant hypertension	Diabetes mellitus
Acute and chronic nephritis	Angina pectoris
Hyperthyroid state	Peptic ulcer
Cushing's disease	Tabetic crises
Polyglandular dyscrasia	Migraine
Brain Tumor	Epilepsy
Mediastinal tumor	Periarteritis nodosa

Confusing

Neurasthenia
Anxiety state
Cardiac neurosis

and symptoms are those produced by hyperadrenalemia and frequently may be correlated as such.

TREATMENT

The treatment of pheochromocytoma is to remove the tumor. Sedation offers only transient relief. X-ray radiation has been tried palliatively, but it offers only a temporary symptom-free period, reported to be as long as one year in one case. Suggested therapy for the paroxysms prior to operation includes morphine, codeine, sedative-hypnotics, magnesium sulfate and various vasodilator drugs such as dibenamine. For prolonged episodes phlebotomy and lumbar puncture have been used. According to MacKeith,[16] adrenalin is specific for collapse following a paroxysm.

Biskind, Meyer and Beadner[22] in 1941 reviewed the literature and selected twenty-nine cases which had been diagnosed correctly and treated surgically. In outlining optimal preoperative, operative and postoperative management, these authors stress giving a high salt diet with a 4 gram daily supplement, and 5 mg. of desoxycorticosterone acetate on the day before and the day of operation as prophylaxis against temporary adrenal cortical deficiency. At the time of operation, during and after removal of the tumor, they recommend adrenalin subcutaneously, intramuscularly and intravenously. adrenal cortical extract and desoxycorticosterone acetate to combat immediate collapse. Handling of the tumor during its removal may result in an outpouring of large amounts of epinephrine. Some surgeons give large doses of benzodioxane drug prior to manipulation and resection of the mass. Results with the doses used are said to be good. Large amounts of blood must be on hand for use if needed, as some of these tumors are quite vascular. Continuous intravenous fluids containing adrenalin, as much as 27 mg. in a twelve hour period, may be given.[22, 32] Postoperatively cortical extract in 10 cc. injections repeated at intervals, desoxycorticosterone acetate, intravenous glucose and potassium chloride[32] are used to maintain a normal blood electrolyte pattern. Chloroform, cyclopropane and spinal anesthesia should be avoided. Basal avertin anesthesia plus ether and oxygen are preferred by Cahill.[1] The abdominal transperitoneal approach is favored by most surgeons, especially if the neoplasm has not been well localized before operation.[1,52] This approach facilitates discovery of unsuspected multiple tumors. The lumbar incision has been used successfully by some operators.

Considering the results of the operative treatment of this disease, MacKeith[16] adds a few cases subsequent to those reported by Biskind[22] and found a total of thiry-seven cases operated on up to 1943, with ten deaths. Of the ten postoperative deaths seven occurred in the nineteen cases reported up to 1936, and three deaths occurred in the eighteen cases from 1936 to 1943. Of the twenty-seven survivors, twenty-four were reported to be doing well. In one case a recurrence of symptoms after operation responded to x-ray treatment.[48] In one of the latest reports, Cahill[1] states that the operative risk is less than 16 per cent.

CONCLUSION

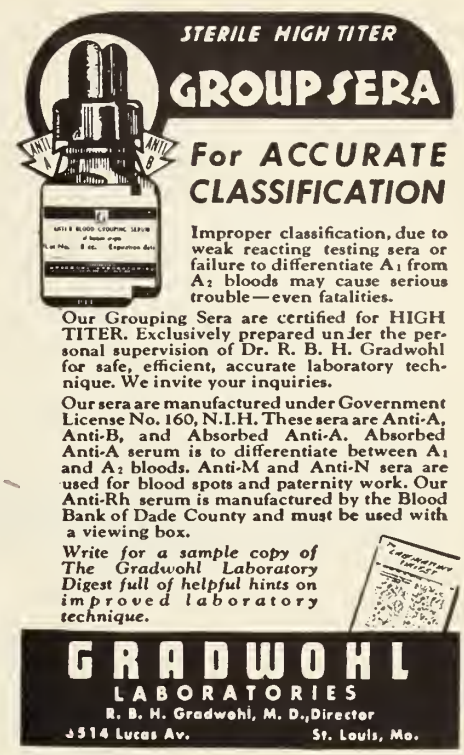
Pheochromocytoma has been discussed from the standpoint of history, description, clinical manifestation, diagnosis and treatment. From the information available and with the new and efficient methods of diagnosis at hand, physicians should more than ever before be on the lookout for this type of neoplasm. Pheochromocytoma produces one of the few types of hypertensive disease which may actually be cured.

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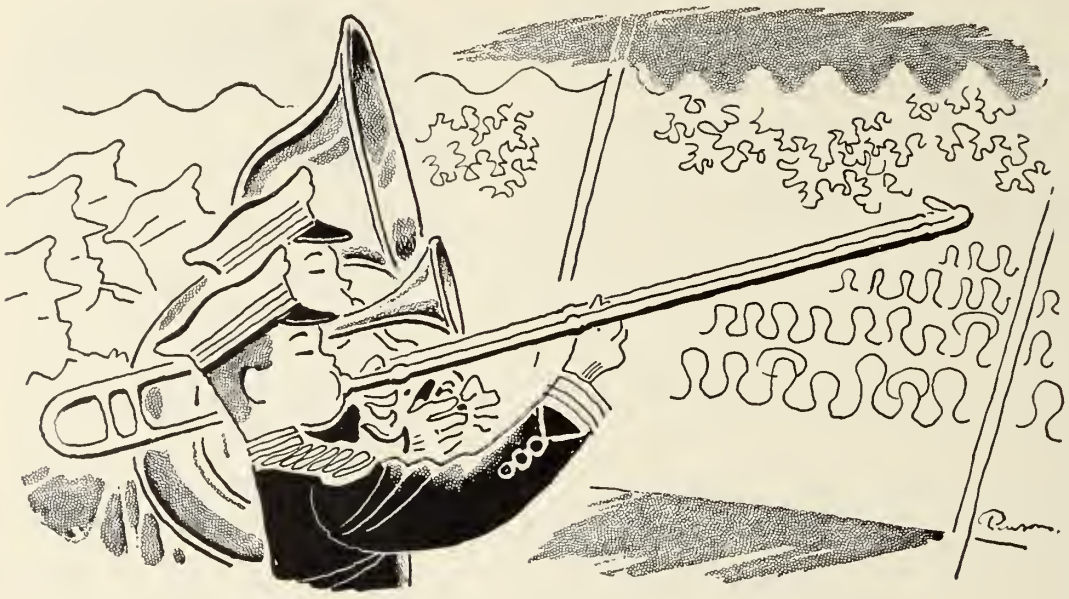
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THE PATIENT, a 42 year old white female had been admitted previously, in August 1947, with edema of the ankles and chronic cough with large amounts of sputum for the last seven years. Lipidol studies had shown this to be due to bronchiectasis. Urinalysis showed from 2 to 4 plus albuminuria and a few casts. Blood counts, nonprotein nitrogen and proteins were normal. The Congo red test showed 80 per cent remaining in serum. She was treated with penicillin and discharged.

In January 1948 she entered the hospital with bronchopneumonia superimposed on bilateral lower lobe bronchiectasis. The findings and laboratory data were unchanged except for the phenolsulfonphthalein test. In August this had shown 83 per cent excretion in two hours. Six months later it had dropped to 32 per cent.

Ankle edema again brought the patient to the hospital in April 1948. The thyroid gland now was enlarged and nodular, the right lobe larger than the left. The total serum proteins were 4 gm.; albumin 1.4 gm. and globulin 2.6 gm.; albumin-globulin ratio was .54. She was treated with mercurial diuretics and the edema improved. The patient was sent to a convalescent home and did fairly well on a low salt diet without mercurial diuretics. She was without appreciable edema. Six months before the present admission a tender, cherry sized nodule was noted in the right lobe of the thyroid gland. On January 29, 1950, she had a chill, increasing dysphagia, laryngeal stridor and severe tenderness and swelling of the neck. The nodule in the thyroid gland disappeared and the outline of the gland became indistinct due to swelling and tenderness.

Shortly before the onset of the acute disease, routine counts at the sanatorium showed a white blood count of 22,000, red blood count of 2.0 million, Hb. 5.5 gms. On admission the patient was critically ill, drowsy and dyspneic. Temperature was 100 F., blood pressure 80/60. Skin was dry and pale.

The eyes, ears, nose and throat showed large amounts of mucopurulent drainage in the hypopharynx and larynx.

There was diffuse swelling of the neck. The thyroid gland could not be outlined distinctly. There appeared to be more swelling on the right side.

Respiration was rapid and labored. No retraction of the suprasternal notch or intercostal space was evident. There were coarse rhonchi over the entire chest. There were many coarse and medium rales over the lower lobes posteriorly. Hemoglobin on admission was 8 gm.

The patient was given a transfusion and on the following day she showed definite erythema of the neck. At the end of a week the swelling, tenderness and dysphagia subsided and the patient was able to take liquids. However, anuria had been present since admission (thirteen days) and she had become increasingly obtunded. Nonprotein nitrogen was 120. CO_2 combining power and chlorides were within normal limits although on admission she had been in severe acidosis with CO_2 of 18 volume per cent. She went downhill and expired on the thirteenth hospital day.

DISCUSSION

R. O. MUETHER, M.D.: A number of interesting diagnostic possibilities are suggested. She had had chronic bronchiectasis for a considerable time which was apparently well authenticated. When she began to have ankle edema, obviously someone considered the possibility of anyloid disease (secondary amyloidosis) and, therefore, carried out a Congo red test which showed 60 per cent of the dye was taken out of the blood stream over the period of time that the test was carried out. The Congo red test is not a completely reliable test of amyloid disease unless one gets 80 to 85 per cent absorption; so this 60 per cent could not be considered diagnostic, although it does make one a little suspicious. The albuminuria and the casts might fit with amyloid disease of the kidneys but apparently the penicillin improved the infection and permitted general improvement. It is unusual to have normal blood counts and serum proteins in amyloidosis.

The admission in 1948 at which time she had pneumonia does not seem to give any additional information except to point out that the patient had a considerable decrease in renal function and a drop in serum protein. This may have been due to continued loses of large quantities of protein in the urine which would be consistent with a so-called nephrotic syndrome or amyloid disease of the kidney. Ankle edema alone would hardly be consistent with a nephrotic syndrome.

Another problem developed at the convalescent home. A nodular goiter was found and shortly after that she developed some type of infection in the neck which made it impossible to palpate the nodule in the thyroid and the neck became red and swollen. She had pain on swallowing and edema of the larynx which produced a stridor. I think the first thing one would think of under these circumstances would be acute thyroiditis. Next, one might consider a cellulitis or Ludwig's angina dissecting between the fascial layers into the mediastinum and producing the symptoms. The fact that this patient had little therapy but improved promptly on bed rest points rather strongly to a diagnosis of thyroiditis.

Thyroiditis is not a particularly common disease but the symptoms, as far as I know, are much like this: a rather rapid onset with swelling, heat and redness over one lobe, or the edema may mask the other lobe and it may appear that both

lobes are involved; in fact, both lobes may be involved. Thyroiditis is not commonly bacterial in nature; abscess formation is uncommon.

Antibiotics in the cases I have seen were not needed. Icebags and bedrest were adequate. X-ray therapy may give dramatic results in the acute and subacute cases.

Whether this patient had a thyroiditis or not is uncertain from the description but it would fit

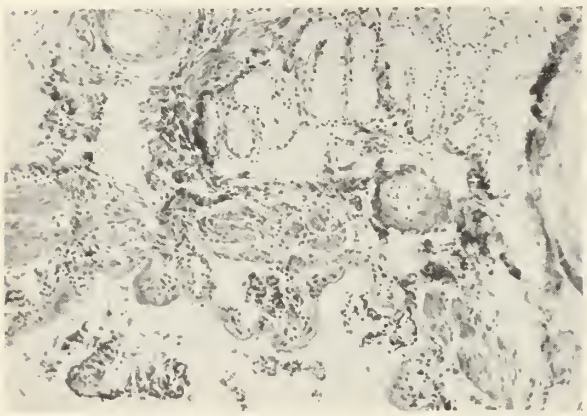


Fig. 1. Section shows infiltration of the wall of the bronchiole and eccentric arteriolar thickening of some of the smaller arteries.

with the 22,000 white blood count. The patient continued to be quite ill even though the thyroiditis improved. She had the hard tender swellings in the gland which could be consistent with chronic thyroiditis or Hashimoto's disease which is a diffuse patchy fibrosis of the thyroid gland and which could continue in this fashion in a debilitated person. The final part of the history is difficult to follow. She certainly died of renal insufficiency since she developed a high nonprotein nitrogen and evidence of uremia. It may be that the renal insufficiency was secondary to infection and shock producing a lower nephron nephrosis superimposed on the already damaged kidney or a nephritis may have been accelerated by fresh insult to the kidney.

In summary, I feel that one must think of bronchiectasis with amyloid disease involving the kidney, acute thyroiditis superimposed on a gland which was already diseased, thus producing shock which may have caused a lower nephron nephrosis, eventually resulting in the death of the patient. This may not explain all of the findings on the basis of one disease but it does seem to be a reasonable surmise from what data is available.

Question: What is usually the terminal event of that secondary amyloidosis? Do the patients often die of uremia?

Dr. Muether: As far as I know they often develop a nephrosis and may develop uremia and die; but this patient did not develop massive edema and albuminuria, the things one would expect to find in a nephrosis. However, amyloid disease can cause uremia without this type of nephrosis.

G. O. Broun, M.D.: I do not think there is much I can add. The terminal anemia might be mentioned (the 2 million count with 5.5 gms. of hemoglobin). This could be due either to renal failure or the high nonprotein nitrogen. Anemia may occur also in infections that are accompanied by leukocytosis that continues for a long time. In the manufacture of leukocytes, apparently a good deal of iron is utilized and this robs the bone marrow of the iron necessary for making blood cells, eventually leading to an anemia of this type. Anemia may result from a high nonprotein nitrogen if it persists for any length of time. The 22,000 leukocyte count apparently went with the severe infection in the neck.

Question: Does bronchiectasis frequently lead to metastatic abscess in the neck?

Answer: It is usually a self-limited disease, being limited to the lungs.

CLINICAL DIAGNOSIS

1. Bronchiectasis.
2. Amyloidosis.
3. Thyroiditis with lower nephron nephrosis.

Herman T. Blumenthal, M.D.: There were two reasons for presenting this case. It was thought, first, that since the group probably had not heard much of amyloidosis it might be a good idea to present a case which is relatively classical. However, there is not any such thing as a classical case, as you may have learned now. I think that the discrepancies that Dr. Muether pointed out are in point—that is, there are discrepancies in almost any case. The second reason for presenting this case is that I would like to talk about the renal picture in amyloidosis and how it relates to

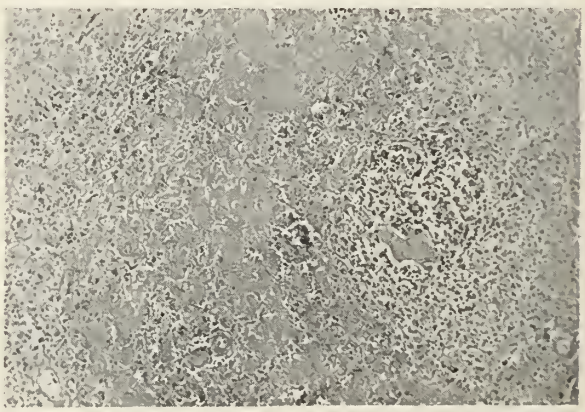


Fig. 2. Amyloidosis of the spleen showing only distorted residual malpighian corpuscles and replacement of the pulp with amyloid.

some of the other renal conditions which may give a similar terminal picture.

This patient was a 42 year old female and was much emaciated. There was some edema of the lower extremities but no other unusual gross findings. The thyroid was palpable; the right side appeared to be a little more enlarged than the left.

There was about 20 cc. of clear yellow fluid in the peritoneal cavity and about 1,500 cc. of fluid in each of the pleural cavities; about 10 cc. in the pericardial cavity. In addition, in the pericardial

cavity there were a number of fibrinous deposits on both the parietal and visceral portions of the epicardium. The fibrinous pericarditis is accounted for by the terminal uremia. Fibrinous deposit may occur in many organs in cases of uremia. One may find them on the pericardium, in the peritoneal cavity covering the viscera and also covering the pleural surfaces. In this case they are apparent only on the pericardial surface in the form of granular deposits.

There is a moderate hypertrophy of the heart and a peculiar translucent appearance to the left atrium. Iodine and 1 per cent sulfuric acid were poured on the left atrium in an attempt to demonstrate the amyloid material. Amyloid material makes up the dark deposits which are bluish when fresh and dark brown after a few minutes.

The pleural surfaces of the lungs are smooth and glistening and do not show any of the fibrinous deposits which are present on the pericardial surface. However, there are peculiar discolorations even in the lungs.

Figure 1 demonstrates the bronchiectasis. There is a thick fibrous layer about the bronchi. The thing that marks this as bronchiectasis is the fact that one can dissect out the bronchi almost to the periphery of the lung. One can not do that normally because they taper down much too rapidly.

The liver weighed 1,700 gms. and showed the transparent color of amyloid deposits. One can get some idea of its transparency in the way the light is reflected. The spleen weighed almost 400 gms. The capsular surface was quite smooth. The cut surface is dry, firm and again has the semi-

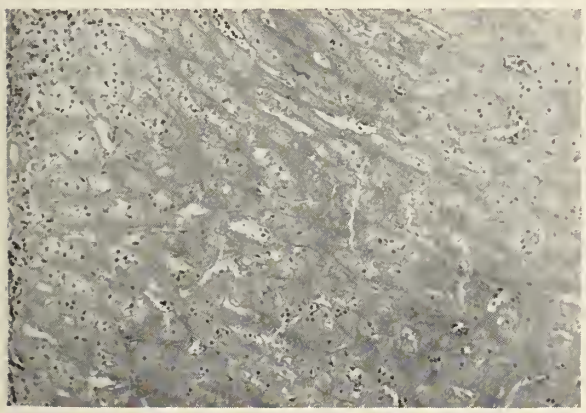


Fig. 3. Extensive amyloidosis of the adrenal.

transparent appearance usually associated with amyloidosis (fig. 2).

The pancreas appears rather small but it has the same dry transparent surface seen in some of the other organs.

Except for the fact that we have already been conditioned by the other organs to a dry surface, one would not think there was anything particularly abnormal about these adrenals; however, microscopic examination (fig. 3) revealed extensive amyloidosis.

The capsule of the kidney was intact. After the capsule was stripped back some fine granular surface irregularities were noted. Otherwise there was nothing remarkable. There was a moderate enlargement of the kidney, the weight being a little more than 200 gms.

The cut surface of the kidney had a yellowish,

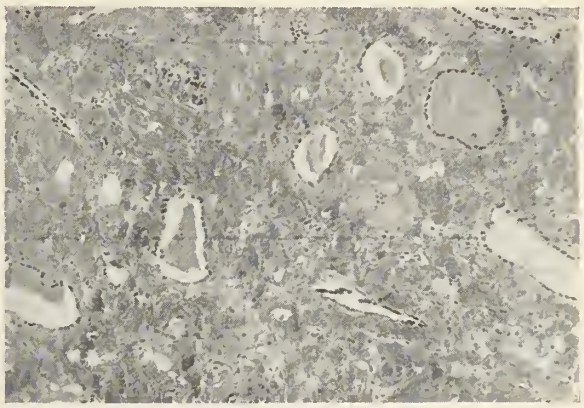


Fig. 4. Amyloidosis of the thyroid. There are a few atrophic thyroid follicles remaining.

dried appearance that resembles, in its surface characteristics, the spleen and the liver.

The right lobe of the thyroid was larger than the left. There is no evidence of acute thyroiditis. The diagnosis of thyroiditis was made by those who saw the patient during life. She obviously did run a course in which the thyroid had enlarged acutely and was associated with fever and the symptoms and signs of localized inflammatory process. At the time that we did the autopsy, the inflammatory process had subsided. We were unable to find any evidence of any previous inflammatory process grossly in the thyroid. Figure 4 shows the definite amyloidosis of the thyroid and is remarkably extensive.

DR. MUETHER: Is not that rather characteristic of an acute thyroiditis, that is, it subsides completely or goes on to the chronic form? They usually recover without leaving signs of the infection.

DR. BLUMENTHAL: Yes, except that we had hoped to find some evidence of this inflammation and were unable to do so. Cross section of the thyroid showed the enlarged right lobe. It had in common with many other organs the same dry surface.

The heart showed some pericardial fat. There were fibrinous deposits on the surface showing some organization by fibrosis.

The myocardium is rather interesting for despite a history of uremia and renal disease, there is no fibrosis; if anything, a fatty metamorphosis of the various septa in the myocardium is noted.

A section through one of the bronchi shows the inflammatory exudate which is present under the epithelium and completely rings the bronchus. The cartilagenous rings of the bronchi which one would expect to see adjacent to them have been replaced in part with fibrous tissue which is infiltrated in some areas with lymphocytes.

AUREOMYCIN

CRYSTALLINE

in Infections of the Puerperium

During the past year, obstetricians have become increasingly impressed with the ability of aureomycin to prevent or arrest infections of the puerperium. Where infection is feared, or has appeared, this broadly effective antibiotic is highly useful. Drug fastness and allergy are very rare following aureomycin. It is believed that this new crystalline form of aureomycin obviates nearly all side reactions.

Aureomycin



Capsules:
Bottles of 25, 50 mg. each capsule.
Bottles of 16, 250 mg. each capsule.

Ophthalmic:
Vials of 25 mg. with dropper; solution prepared by adding 5 cc. of distilled water.

Aureomycin has also been found effective for the control of the following infections:

Acute amebiasis, bacterial infections associated with virus influenza, bacterial and virus-like infections of the eye, bacteroides septicemia, boutonneuse fever, brucellosis, chancroid, Friedländer infections (Klebsiella pneumonia), gonorrhea (resistant), Gram-negative infections (including those caused by some of the coli-aerogenes group), Gram-positive infections (including those caused by streptococci, staphylococci, and pneumococci), granuloma inguinale, *H. influenzae* infections, lymphogranuloma venereum, peritonitis, pertussis infections (acute and subacute), primary atypical pneumonia, psittacosis (parrot fever), Q fever, rickettsialpox, Rocky Mountain spotted fever, sinusitis, subacute bacterial endocarditis resistant to penicillin, surgical infections, tick-bite fever (African), tularemia, typhus and the common infections of the uterus and adnexa.

LEDERLE LABORATORIES DIVISION

AMERICAN Cyanamid COMPANY

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Case Report

MUCOCELE OF THE APPENDIX

WILLIAM C. VAN BUSKIRK, M.D.
KANSAS CITY

Mucocele of the appendix is a fairly common condition which is of interest because of the varied aspects of the clinical picture and the difficulty of preoperative diagnosis. Many articles have appeared in the literature in the last ten years on this subject, frequently under such synonyms as cystic disease of the appendix, hydrops of the appendix, retention cyst of the appendix, colloid cyst of the appendix, cystadenoma of the appendix and cyst of the appendix.[2, 10]

Incidence.—The incidence of mucocele of the appendix varies with the statistics cited. The figures usually quoted range from 0.13 per cent of appendices examined[6] to 0.3 per cent (146 cases in 43,000 appendices examined).[10]

Etiology and Pathogenesis.—According to Miller[2] three conditions must be present to produce a mucocele of the appendix: (1) a stenosis of the lumen at the cecum, (2) continuous production of mucin, and (3) absence of violent infection. If obstruction is rapid as with fecalith, appendiceal colic is produced and the patient is operated upon. In such a case infection is present, the closed lumen contains an excellent culture medium and empyema of the appendix usually results.

On the other hand, if stenosis of the appendiceal lumen is slow and the produced mucin "washes out" the infecting organism, then a mucocele will be produced. As distention occurs, the appendix may assume almost any shape or size, as hourglass, cylindrical, elongated.

Bunch[4] points out that both the colon and the appendix have tubules lined with columnar epithelium which secrete mucus (so-called goblet cells). He believes chronic obliterating fibrosis of the appendix occurs from long standing, low grade infection which may occlude the lumen. Secretion of mucus may exceed its drainage and thus produce the mucocele. Latimer[11] believes that the occurrence of mucocele of the ovary and of the appendix in the same patient has been frequent enough to justify speculation as to the possibility of some other etiologic factor. He brings out the pertinent point that mucocele changes occur frequently only in a portion of the appendix which is against the luminal obstruction theory. He suggests a possible developmental defect on a congenital precursor.

Some authors believe that as the mucin increases in the appendix, the intraluminal pressure also increases. This may cause the mucosa to herniate out through the appendiceal wall, thus producing a diverticulum. These may rupture, discharge their mucus contents, and seal over again. Re-accumulation, rupture and the sealing over process may occur many times. The spilling of the contents of the mucocele into the peritoneal cavity results in the studding of the peritoneal surfaces with a gelatinous, mucoid material, which may grow and cover large areas of peritoneum. This is known as pseudomyxoma peritonei.

Pseudomyxoma peritonei is an ill defined, rare (less than 100 cases reported of appendiceal origin)[4] entity consisting of disseminating intraperitoneal mucus from a rupture of an appendiceal mucocele.[2] While some believe that this condition is produced by the growth of mucous cells on the peritoneal surface, Rubnitz and Hermann[7] are convinced that the pathologic picture results from the reaction of the peritoneum to the mucus.

Woodruff and MacDonald[10] state that if mucus does spill into the peritoneal cavity, it lies free within the cavity and does not produce the clinical picture of pseudomyxoma peritonei. They believe that pseudomyxoma peritonei can result only from a rupture of a cystocarcinoma of the appendix, and that rupture of simple mucocele does not produce pseudomyxoma peritonei. In only ten of 146 cases of mucocele of the appendix which they studied were there pseudomyxomatous regions in the peritoneum. Malignant cells were found in these areas.

Bunch[4] reasons that pseudomyxoma peritonei most frequently originate in the ovary, and since these are often malignant, he concludes that those from the appendix probably are also. Chaffee and LeGrand[5] found 38 per cent of the implants of pseudomyxoma peritonei to be malignant.

Experimental Evidence.—Grodinsky and Rubnitz[9], working with rabbits, found that by ligation of the appendiceal stump with tape 2 cm. distal to the base and irrigating the lumen with 60 to 80 cc. of sterile saline solution, they could regularly produce mycoceles of the appendix. Ten out of twelve rabbits developed mucoceles; six of the ten ruptured and formed pseudomyxoma peritonei. They then placed the contents of the mucocele in solution and injected it into the peritoneal cavity of five rabbits. Three of these rabbits developed pseudomyxoma peritonei. Two rabbits developed pseudomyxoma peritonei when injected intraperitoneally with the contents of the secondary pseudomyxoma peritonei of other rabbits. They were still unable to determine whether it was the reaction of the peritoneum to the mucus or the mucous cells themselves which produced these lesions.

Symptomatology and Clinical Picture.—Approximately one half of the patients found at operation to have a mucocele of the appendix gave a history of pain, discomfort or other variable symptoms referable to the right lower quadrant[6]. As a rule, the symptoms were quite vague and persisted over a long period of time.

Sometimes the patient may give a history of mul-

Resident in Pathology, St. Joseph Hospital, Kansas City, Missouri.

tiple attacks of acute and subacute appendicitis[8] or may first present himself with a symptomless abdominal mass. If the mucocele has occluded the lumen of the bowel by pressure or torsion, intestinal obstruction will follow. When there are peritoneal implants, the patient usually complains of malaise and abdominal distention. On physical examination a mass may or may not be palpable in the right lower quadrant. On barium enema studies, these masses are frequently found as a pressure defect into the head of the cecum. These findings often lead to the preoperative diagnosis of carcinoma of the cecum. Usually a mucocele of the appendix is found incidentally during the course of an exploratory laparotomy.[5] Rupture of mucocele of the appendix is not accompanied by typical picture of peritonitis because it is essentially sterile. It may produce ascites, however, due to the blocking of lymphatics by the gelatinous material.[2, 4]

PATHOLOGY

Gross Findings.—The size of the appendix may be quite variable. It may appear to be normal in size or reach the proportions of a football. The consistency ranges from cystic to firm. The wall may be ruptured or intact.[5] The wall is usually smooth with no papillary formation. If papillae are found, malignancy is usually present.[10]

Histologic Findings.—The histologic picture varies from an almost normal mucosa to a thinned-out membrane filled with hyaline material. Usually there is a predominance of mucous cells. There may be changes to adenocarcinoma in the wall which frequently give rise to pseudomyxoma peritonei.

TREATMENT AND PROGNOSIS

If only a simple mucocele of the appendix is present, it is generally agreed[4, 6, 8, 9] that surgical removal is the procedure of choice. Prognosis is excellent. However, if there are peritoneal implants, the prognosis is much worse. It is stated that the incidence of malignancy in pseudomyxoma peritonei is from 38 per cent to 100 per cent.[10] Death may be produced by intestinal obstruction due to the mechanical effects of the myxomatous material or due to blocking of lymphatics. Once pseudomyxoma peritonei develops, attempts at surgical removal are usually futile. Some authors[8] believe irradiation may be helpful, but others state this has not been proven definitely.[6]

The records for the last four years at the St. Joseph Hospital were searched for cases of mucocele of the appendix. Seven cases were found. The age of these patients ranged from 36 to 93, with an average age of 56. There were six female patients and one male. In four, the mucocele changes in the appendix were found incidentally during gynecologic operations. In one of the remaining patients, there was a complaint of intermittent right lower quadrant pain and constipation over a seven day period. No masses were palpable and the appendix was removed as an elective procedure. In another, diarrhea had persisted for six weeks, tarry stools for four weeks and severe cramping in the lower abdomen for three days. Again, no mass was palpable. A flat plate of the abdomen was interpreted as revealing the presence of intestinal obstruction, most likely in the right lower quadrant. In the third patient (the case presented in detail), the symptoms of cramping and pain continued for six months. No mass was palpable in the abdomen but a definite mass could be felt on vaginal examination. The barium enema films demonstrated a filling defect in the cecum.

CASE REPORT

The patient was a 69 year old, white para 2, gravida 4 housewife who entered St. Joseph Hospital with the chief complaint of pains in the left hip and left femur.

Five months before admission, she started having severe cramping, constant pains in the left femur from the knee to the hip, especially when recumbent at night. The pain was relieved by heat and by movement such as walking. This lasted for about a month. Since that time, she has had a stinging pain around the left hip, occasionally radiating down the left femur.

The patient had diabetes. She had been taking insulin (40 units regular plus 20 units protamine zinc insulin) and was on a sugar free diet. There was only a trace of sugar in the morning urine. The patient had suffered from thirst and constipation but this disappeared completely when she began to receive insulin. She has had normal bowel movements. There is no history of insulin shock or diabetic coma.

System Review.—This was noncontributory.

Past History.—She had had typhoid fever forty-five and forty-two years previously. Twenty-five years ago, the patient had had a fibroid uterus and one ovary removed.

Physical Examination.—Physical examination revealed a well preserved, healthy looking 69 year old white female. There was no orthopnea, dyspnea or cyanosis. The eyes, ears, nose and throat were normal.

Lymph Nodes.—There was no hypertrophy or peripheral nodes.

Heart.—The heart was slightly enlarged; no definite murmurs; rhythm was regular.

Lungs and Chest.—Lungs and chest were normal on examination.

Abdomen.—There was a lower midline scar from the previous operation; otherwise the abdomen was normal.

Extremities.—There was tenderness of the left gluteal muscles and muscles around the left trochanter. There was no atrophy of the femoral muscles; mobility of the left hip was normal. Reflexes were normal and there was no sensory disturbance. Skin temperature was the same in both legs.

Spine.—The spine showed lumbar lordosis.

Pelvic Examination.—The perineum, cervical stump and left adnexa were essentially normal. In the right adnexa, there was a mass the size of an orange, high up and barely palpable with the inside finger. However, externally it was movable and globular or rounded. It seemed firm but not hard. This was thought to be an ovarian cyst, a mesenteric cyst or a lesion at the head of the cecum.

Laboratory Data.—On November 11, 1949, urinalysis showed a normal urine including sugar and acetone except for one to three red cells and eight to ten white cells. The hemoglobin was 80 per cent, red blood cells 4,010,000, white blood cells 9,600. The nonprotein nitro-

gen was 41, fasting blood sugar 112 and chlorides 533. The Kahn was negative. X-ray studies on November 12, 1949, the day after admission, revealed the following: Degenerative skeletal, arterial and pulmonary changes. Mass in the right lower quadrant of the abdomen indenting the cecal head. Because of this defective area, the barium enema was repeated four days later (November 16, 1949) with the same findings. This was interpreted as either an intrinsic or extrinsic mass, possibly carcinoma of the head of the cecum or a pericecal abscess. An electrocardiogram taken on November 18, 1949, was interpreted as showing sinus rhythm; minimal left axis deviation.

Hospital Course.—After admission to the hospital, the patient was placed on 40 units regular insulin and 65 units of protamine zinc insulin. Her diabetes was fairly well controlled, fasting blood sugars ranging from 90 to 161. The temperature, pulse and respirations were within normal limits. Because of the findings on physical examination and by barium enema, a surgical exploration was performed on November 22, 1949.

Under spinal and sodium pentothal anesthesia, a right paramedian incision was made and the abdominal cavity was opened. A large mucocele of the appendix, approximately the size of a man's hand, was found. Resection was performed through the lower portion of the ileum and just beyond the cecum by means of an electric cautery and a side-to-side anastomosis was done and the abdomen was closed without drainage. The postoperative condition of the patient was good.

Postoperative Course.—Following operation, the patient was returned to the ward in good condition. She was given intravenous fluids with insulin, adrenal cortex, duracillin and streptomycin and dilaudid for pain. She was placed on Wangensteen suction. Her temperature ranged from 99.6 to 100.8 F. The chemotherapy and insulin were continued. She received 500 cc. of whole blood daily for four days and two during the operation for a total of six pints. On the second postoperative day, she sat on the edge of the bed. She began to take water and juices by mouth with the tube clamped off. On the third postoperative day, the patient complained of feeling weak and on the following day occasionally became incoherent. The patient appeared quite ill and remained restless. On the fifth postoperative day, the patient complained of difficulty in breathing and also of pain in the left leg. In the evening she again complained of a tightness in the chest and was expectorating small amounts of phlegm but no blood. A lumbar sympathetic block was performed with procaine but with only slight relief. On the seventh postoperative day, the patient was taken to the operating room again. Under ether anesthesia, a longitudinal incision was made in the left groin over the superior portion of the saphenous vein. The vein was exposed, isolated and found to contain blood clots up to the entrance of the saphenous vein into the femoral vein. A portion of the vein, approximately two and one half inches in length, was doubly ligated and the vein was removed by sharp dissection. The subcutaneous tissue was then approximated with chromic No. 1 and the skin was closed with cotton (black No. 30).

Following the vein ligation, the patient's temperature became normal on the third day. It remained normal. She was out of bed on the third day; the swelling, redness and tenderness gradually subsided. She had no more cough or expectoration. She has been seen on one occasion since leaving the hospital and stated she felt quite well.

PATHOLOGY

Gross Pathology.—This specimen consisted of approximately 8 cm. of terminal ileum, the cecum and approximately 5 cm. of ascending colon. The mucocele measured approximately 10 cm. in length and 5 cm. in diameter. The external surface was smooth, shiny and glistening and no evidence of infection was seen. It contained a thick, gelatinous mass of mucoid material. The wall was extremely thin and the mucous membrane was absent in most areas. However, in some areas, it appeared to be thick and hyperplastic. In one area, there was also what appeared to be a slightly papillary process.

Histologic Pathology—Section taken through the mucocele portion of the appendix revealed a thickened wall; many lymphocytes were present beneath the serosa; the muscularis was flattened and atrophic and largely replaced by collagenous fibrous tissue. The mucosa was completely replaced by an organizing mucoid mass showing pink staining mucoid material with many strands of fibrous tissue running through it. In other areas, groups of lymphocytes suggesting portions of the compressed submucosa were seen.

Diagnosis.—Mucocele of the appendix associated with terminal ileum and cecum.

SUMMARY AND CONCLUSIONS

A case of mucocele of the appendix has been reported in detail together with the pathologic findings. This condition occurs in about 0.3 per cent of all appendices examined microscopically. The pathogenesis of the lesion is not proven but it is probably due to obstruction of the lumen of the appendix in the absence of virulent infection. This can be produced experimentally. The clinical picture is usually vague; the patient usually complains of obscure symptoms referable to the right lower quadrant. Frequently a mass is felt on physical examination or demonstrated by x-ray. Two complications may occur. Malignancy may develop with peritoneal implants producing pseudomyxoma peritonei or pseudomyxoma peritonei may develop in the absence of malignancy. The proper treatment for simple mucocele of the appendix is wide surgical removal.

St. Joseph's Hospital.

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PRESIDENT'S PAGE

Reorganization Plan No. 27 was submitted to the Congress on May 31, 1950, by President Truman. This plan sought to create a Department of Health, Education and Security. The proposal was in conflict with the report of the Hoover Commission which recommended the establishment of a single medical administration which would include all or most of the governmental agencies which deal with health. The proposal likewise did not conform with the A. M. A. twelve point program. The A. M. A. has urged for many years the establishment of a federal Department of Health of cabinet status with a secretary who is a Doctor of Medicine.



The House of Delegates of the A. M. A. took unanimous action against Reorganization Plan No. 27 at the San Francisco Session. Spokesmen for the Association appeared and made statements opposing it before the committees of the House and Senate.

The plan was considered on July 10 by the House of Representatives and was defeated by a vote of 249 to 71. Missouri members of Congress voted as follows: For Reorganization Plan No. 27, Mr. Magee, 1st District; Mr. Bolling, 5th District; Mr. Carnahan, 8th District; Mr. Sullivan, 11th District; Mr. Marsten, 13th District. Against the Plan, Mr. Welch, 3rd District; Mr. Short, 7th District; Mr. Cannon, 9th District; Mr. Jones, 10th District; Mr. Karst, 12th District. Not present, Mr. Moulder, 2nd District; Mr. Irving, 4th District; Mr. Christopher, 6th District.

W. A. Bloom

Editorials

AMERICAN MEDICAL ASSOCIATION 1950 SESSION

The 99th Annual Session of the American Medical Association held in San Francisco, June 26 to 30, proved to be an outstanding one. Although the San Francisco County Medical Society promised fog, little was seen. The weather was perfect throughout the meeting. The attendance was the largest in the history of the Association with the exception of the 1947 Centennial Session in Atlantic City.

Missouri delegates and members as usual participated actively in the transactions of the House of Delegates and in the scientific sessions. W. L. Allee, M.D., Eldon, and Howard B. Goodrich, M.D., Hannibal, delegates, served as members of important reference committees.

Missouri was signally honored by the selection of Evarts A. Graham, M.D., St. Louis, as the recipient of the Distinguished Service Award for 1950. Selection for the annual Distinguished Service Award is by secret ballot in the House of Delegates. Dr. Graham was elected on the first ballot over two other nominees. Dr. Graham is Professor of Surgery, Washington University School of Medicine, St. Louis, and Surgeon in Chief of Barnes Hospital.

Elmer L. Henderson, M.D., Louisville, Ky., was installed as President. Officers elected were: President-elect, John W. Cline, M.D., San Francisco; Vice President, R. B. Robins, M.D., Camden, Arkansas; Secretary and General Manager, George F. Lull, M.D., Chicago; members of the Board of Trustees, L. W. Larson, M.D., Bismarck, N. D., and Thomas P. Murdock, M.D., Meriden, Conn.

James R. McVay, M.D., Kansas City, was reelected a member of the important Council on Medical Service.

Mr. H. E. Slusher, Jefferson City, President of the Missouri Farm Bureau and chairman of the rural health committee of the American Farm Bureau Federation, addressed the Conference of Presidents and other officers of State Medical Association on Sunday, June 25. His subject was "Better Health for Rural People—How to Get It."

PHYSICIAN POPULATION INCREASES 2,266 IN 1949

Physicians in the United States, its territories and possessions increased 2,266 in 1949, according to the forty-eighth annual medical licensure report of the American Medical Association's Council on Medical Education and Hospitals. The official figures indicate that last year 5,866 physicians were licensed for the first time and represents the gross additions to the profession for that year. In 1949 there were 3,600 deaths of physicians reported to the offices of the American Medical Association.

The greater number of physicians licensed for the first time in any one state was 973 in New York. California had more than 500 first licentiates and Pennsylvania more than 400.

During the year there were 12,181 licenses to practice medicine issued by the medical examining boards of the forty-eight states, the District of Columbia and the territories and possessions. California led in the number of physicians licensed with 1,511. New York was second with 1,452, Rhode Island third with 644 and Illinois fourth with 590. Ohio licensed 568, Texas 437, Michigan 411, Massachusetts 389, New Jersey 346, Florida 325 and Missouri 316.

During 1949 there were 5,963 applicants for medical licensure by written examination, of whom 5,219 passed. The candidates examined represented seventy approved medical schools in the United States, nine approved medical schools of Canada, six United States medical schools now extinct, 124 faculties of medicine and two licensing corporations of other countries, six unapproved medical schools in the United States and ten schools of osteopathy.

Among the 4,675 graduates of approved medical schools in the United States, only 3.2 per cent failed. Of the 737 graduates of faculties of medicine located in countries other than the United States and Canada, 56.7 per cent failed and of the 114 graduates of schools of osteopathy, 42.1 per cent failed. Among the 282 graduates of unapproved schools in the United States, 34.7 per cent failed.

Fourteen state medical boards have accepted a list of high standard foreign medical schools compiled by the American Medical Association's Council on Medical Education and Hospitals and the executive council of the Association of American Medical Colleges. The list contains the names of thirty-eight schools in nine foreign countries.

NEWS NOTES

C. Edgar Virden, M.D., Kansas City, was elected president of the American College of Radiology at a meeting of the college in San Francisco on June 25.

E. D. Sugarbaker, M.D., Jefferson City, spoke at a meeting of bankers from Cooper, Howard, Randolph and Saline counties at Fayette on June 13. He spoke on "Cancer Control."

Arthur W. Proetz, M.D., St. Louis, was presented an honorary Doctor of Science degree at the 129th commencement exercises at Colby College, Waterville, Maine, on June 13.

J. Lester Harwell, M.D., Poplar Bluff, was elected chairman of the Butler County Health Center's committee on June 16.

Organization and Economics

NEWS NOTES

G. V. Stryker, M.D., St. Louis, was installed as vice president of the St. Louis University School of Medicine Alumni Association, and A. E. Brodeur, M.D., St. Louis, as secretary-treasurer, at an installation ceremony held at the Sir Francis Drake Hotel, San Francisco.

Robert McEwen Schauffler, M.D., Kansas City, was presented a plaque at the annual picnic of the staff of the Children's Mercy Hospital, Kansas City, on June 20. Dr. Schauffler, president emeritus of the medical staff, was the "first physician appointed to the medical staff of the Children's Mercy Hospital in 1904" and the plaque read further "in appreciation of service as orthopedist, humanitarian, writer and man among men."

Robert Bruner, M.D., Kansas City, was the guest speaker before the Pattonsburg Lions Club on June 29 and spoke on "The Problem of Cerebral Palsy in the Community."

Vance E. Link, M.D., Kansas City, spoke before members of the Kiwanis Club of Independence on June 21 discussing "The Progress of Medicine in the Last Fifty Years."

Charles K. Shofstall, M.D., Kansas City, was a guest speaker on the weekly police safety broadcast over radio station WDAF on June 19.

E. Lee Dorsett, M.D., St. Louis, was a guest speaker before the Macoupin-Montgomery County Medical Society at Carlinville, Illinois, on June 6.

Willard M. Allen, M.D., St. Louis, was one of thirteen graduates of the University of Rochester who received special citations in New York on June 10.

The Lions Club of Malden sponsored a banquet on June 27 honoring Samuel E. Mitchell, M.D., who has practiced medicine in Malden for forty-four years. Following the dinner a number of appropriate talks were given, testimonial letters read and gifts presented to Dr. Mitchell. Frank W. Hall, M.D., Cape Girardeau, Councilor of the Tenth Councilor District, represented the State Medical Association.

MUSINGS OF THE FIELD SECRETARY

It seems that keeping a county health council alive and working after organization is a most important problem. The more than fifty county health councils which, to date, have been organized in Missouri indicate not too much difficulty in the organization stage. However, a little investigation of the activities and accomplishments of these councils brings to light the difficulties involved in keeping interest alive, in maintaining good attendance at meetings, in stimulating committee functions, in selecting and evaluating objectives and in promoting continuing surveys of the health needs of the communities.

On Wednesday, August 2, the twenty-four statewide and fifteen local member organizations will hold a one day meeting at the Governor Hotel, Jefferson City, from 11:00 a. m. to 3:00 p. m., to discuss ways and means of how to make a county health council "tick." The idea is to pass around the worth-while experiences of the various members. It will be an open meeting.

DEATHS

Evans, Robert L., M.D., Boonville, a graduate of the Missouri Medical College, St. Louis, 1891; member of the Cooper County Medical Society; aged 85; died April 27.

Bone, Merle, M.D., St. Louis, a graduate of the State University of Iowa College of Medicine, Iowa City, 1907; Fellow of the American Medical Association; honor member of the St. Louis Medical Society; aged 65; died May 9, 1950.

Tibe, Matilda L., M.D., St. Louis, a graduate of the St. Louis College of Physicians and Surgeons, 1909; honor member of the St. Louis Medical Society; aged 71; died May 14.

Van Noy, Levi T., M.D., Norwood, a graduate of Ensworth Medical College, St. Joseph, 1904; former president and member of the South Central Counties Medical Society; aged 84; died May 19.

Poe, John S., M.D., Little Rock, Arkansas, a graduate of Washington University School of Medicine, 1935; member of the St. Louis Medical Society; aged 40; died May 21.

Ehlers, Charles W., M.D., St. Louis, a graduate of St. Louis University School of Medicine, 1928; Fellow of the American Medical Association; member of the St. Louis Medical Society; aged 49; died May 24.

Underwood, John B., M.D., St. James, a graduate of Barnes Medical College, 1901; honor member of the Phelps-Crawford-Dent-Pulaski County Medical Society; aged 85; died June 18.

Stroud, C. Malone, M.D., St. Louis, a graduate of Washington University School of Medicine, 1926; Fellow of the American Medical Association; member of the St. Louis Medical Society; aged 47; died June 24.

BLUE CROSS PLANS' PAYMENTS TO HOSPITALS

Nearly a hundred million dollars, representing more than 88 per cent of income, was paid to hospitals by the voluntary, nonprofit Blue Cross Plans for care of members during the first quarter of 1950, according to Mr. Richard M. Jones, Chicago, director, Blue Cross Commission of the American Hospital Association.

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Personal Course in General Surgery, Two Weeks, starting September 25.
Surgery of Colon & Rectum, One Week, starting September 11.
Esophageal Surgery, One Week, starting October 16.
Breast & Thyroid Surgery, One Week, starting October 2.
Thoracic Surgery, One Week, starting October 9.
Gallbladder Surgery, Ten Hours, starting October 23.
Fractures & Traumatic Surgery, Two Weeks, starting October 9.
Basic Principles in General Surgery, Two Weeks, starting September 11.
GYNECOLOGY—Intensive Course, Two Weeks, starting September 25.
Vaginal Approach to Pelvic Surgery, One Week, starting September 18.
OBSTETRICS—Intensive Course, Two Weeks, starting September 11.
MEDICINE—Intensive General Course, Two Weeks, starting October 2.
Gastro-enterology, Two Weeks, starting October 16.
Gastroscopy, Two Weeks, starting September 11 and October 23.
Electrocardiography & Heart Disease, Four Weeks, starting October 2.
DERMATOLOGY—Formal Course, Two Weeks, starting October 16. Informal Clinical Course every two weeks.
UROLOGY—Intensive Course, Two Weeks, starting September 25.
Cystoscopy, Ten Day Practical Course, every two weeks.

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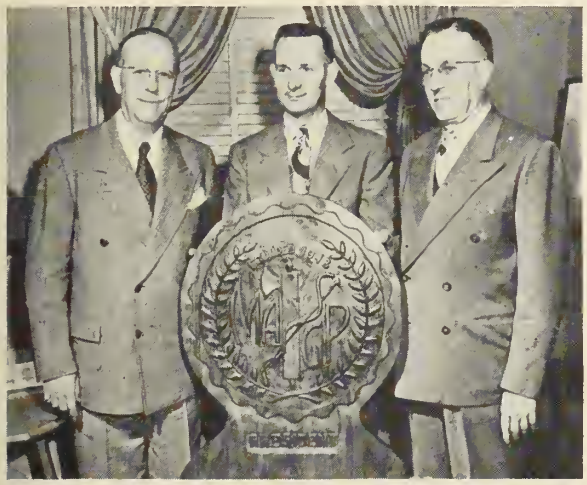
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From a total income of $109,801,301, the ninety Blue Cross Plans of the United States and Canada paid $96,989,972 for member's care and used only $9,184,564 (8.37 per cent) for operating expenses.

There are more than 38,000,000 persons enrolled in the Blue Cross Plans in the United States and Canada, representing more than 24 per cent of the United States population and 21 per cent of the Canadian people.

PLAQUE PRESENTED TO GENERAL PRACTITIONERS

A plaque, hand carved by Peter V. Siegel, M.D., Smithton, was presented to the Missouri Academy of



General Practice at the annual session held in Springfield on April 27. Dr. Siegel has a complete workshop in his home and devotes much of his spare time to his hobby of wood carving and cabinet making. Robert C. McElvain, M.D., St. Louis, president of the Missouri Academy of General Practice, Dr. Siegel, and William J. Shaw, M.D. Fayette, past president of the organization, posed with the plaque.

AMERICAN MEDICAL ASSOCIATION TO ADVERTISE

The American Medical Association, by unanimous action of its Board of Trustees and Campaign Coordinating Committee, has given the final "go ahead" signal for a nationwide advertising program which will include newspapers, magazines and radio as a new phase of its National Education Campaign in behalf of voluntary health insurance against socialized medicine.

Whitaker and Baxter, directors of the American Medical Association's National Education Campaign, announced authorization of the advertising program and stated that it will begin in October.

A total advertising budget of $1,110,000 has been approved by the American Medical Association Board of Trustees, with $560,000 allocated to newspapers, $300,000 to radio and $250,000 to national magazines.

The newspaper advertising schedule calls for blanket coverage of every bona fide daily and weekly newspaper in the United States, approximately 11,000, and the copy is scheduled to run during the week of October 8. Newspapers in the territories of Hawaii and Alaska will be included in the schedule.

About thirty of the leading national magazines and a score of advertising trade publications will be included in the magazine advertising program. The radio advertising program calls for an intensive spot announcement campaign, utilizing time on some 300 radio stations covering every state and Hawaii and Alaska. The magazine and radio campaigns also are scheduled for October.

The announcement states: "The American Medical Association is embarking on a nationwide advertising program for two reasons. First, it is determined to aid in every way possible in increasing the availability of good medical care to the American people through the medium of voluntary health insurance. In that respect, the advertising copy will be designed to make the American people 'health insurance conscious' and to encourage the extension and development of prepaid medical and hospital care as a means of taking the economic shock out of illness. Second, American medicine is determined to alert the American people to the danger of socialized medicine and to the threatening trend toward state socialism in this country.

"The copy, in part, will be designed to sell a commodity, voluntary health insurance, but not any particular brand or plan. The individual will be encouraged to secure sound coverage in the plan which he feels best suits his individual needs. In its second aspect, the copy will be used to mobilize public opinion in support of a basic American ideal—the principle of individual freedom, as opposed to the alien philosophy of a government-regimented economy."

MEDICO-MILITARY SYMPOSIUM TO BE GIVEN

To keep military Reserve Medical Officers of the Armed Forces, Army, Navy, and Air Force posted on the latest developments in the field of Medical Science, a Medico-Military Symposium for officers of the Fourth Naval District will be held at the U. S. Naval Hospital, Philadelphia, Pa., from October 23 to 28.

Commodore Richard A. Kern, MCR, USNR, Professor of Medicine, Temple University School of Medicine, and chairman of the symposium General Committee, has announced that Rear Admiral Clifford A. Swanson, MC, USN, Surgeon General of the Navy, will open the meetings with an address on "The Physician as a Naval Officer."

Officers attending the symposium will be welcomed by Rear Admiral Roscoe E. Schuirmann, Commandant of the Fourth Naval District; Brigadier General Leonard E. Rea, USMC; Captain Clyde W. Brunson, MC, USN, Commanding Officer of the Philadelphia Naval Hospital, and Captain J. R. Thomas, Fourth Naval District Medical Officer.

Speeches and panel discussions are scheduled in aviation medicine, national defense in case of disaster or attack, national preparedness, psychiatry, submarine medicine, surgery and orthopedics. Physicians selected to head the panels include Brig. General James P. Cooney, Chief, Radiology Branch, Division of Military Application, Atomic Energy Commission; Dr. Perrin Long, Professor of Medicine, Johns Hopkins University; Captain John Poppen, MC, USN; Captain George Lyons, MC, USN; Rear Admiral C. J. Brown, MC, USN; Captain C. W. Shilling, MC, USN; Dr. Frank Braceland;

Dr. Joseph Hughes, Dr. Edward Strecker and Dr. Christian J. Lamberton.

It is urged that officers make hotel reservations well in advance since no government housing facilities will be available. The final session of the symposium will be held Saturday morning, October 28, leaving the afternoon free for officers to attend the Penn-Navy football game.

All members of the medical profession are invited to attend the symposium.

THE COUNCIL

The Council met at the Kentwood Arms Hotel, Springfield, on June 3 and 4, 1950, with J. W. Thompson, M.D., St. Louis, Chairman, presiding.

Those present were Drs. Donald M. Dowell Chillicothe; W. F. Francka, Hannibal; J. W. Thompson, St. Louis; Otto W. Koch, Clayton; J. F. Jolley, Mexico; R. W. Kennedy, Marshall; Victor B. Buhler, Kansas City; W. S. Sewell, Springfield; E. C. Bohrer, West Plains; Frank W. Hall, Cape Girardeau; C. Edgar Virden, Kansas City; W. A. Bloom, Fayette; H. E. Petersen, St. Joseph; R. O. Muether, St. Louis; Victor Scherman, St. Louis; W. L. Allee, Eldon; F. T. H'Doubler, Springfield; Wallis Smith, Springfield; Joseph Johnston, Springfield; B. Landis Elliott, Kansas City; Buford G. Hamilton, Jefferson City; R. E. Duncan, Kansas City; Robert Mueller, St. Louis; E. C. Ernst, St. Louis; F. G. Pernoud, St. Louis; Messrs. W. H. Bartleson, Kansas City; D. E. Caywood, Springfield; Lemoine Skinner, Ray McIntyre and T. R. O'Brien, St. Louis.

The minutes of the last meeting were approved.

National Society for Medical Research

It was decided, upon motion of Dr. Koch, to contribute again this year to the work of the National Society for Medical Research in the amount of $50.00.

White House Conference on Youth

A letter asking for a contribution toward the White House Conference was read by Mr. O'Brien. After discussion, it was decided, upon motion of Dr. Hall, that no contribution should be made but that the organization should be written expressing the interest of the Council.

Junior Chamber of Commerce

Mr. Caywood presented a request of the Junior Chamber of Commerce that the Association become an associate member organization. After discussion, it was decided that the Association should become an associate member.

Committee on Nursing

A letter from the Missouri Hospital Association suggesting a committee composed of three members of that association, three members from the Missouri State Medical Association and three from the Nurses Association was presented. It was decided to appoint such a committee, the members depending on those most interested and who could attend a meeting in St. Louis on July 8.

Grievance Committee

The resolution adopted by the House of Delegates, directing that difficulties should be handled at a local level, with the committee of the Council available for assistance, was explained. It was suggested that material informing county societies of experience in other states be sent.

Alcohol as a Disease

The special committee appointed to study material furnished by Dr. S. D. Smith, Columbia, on alcohol as a disease gave the following report, which upon motion of Dr. Petersen, was adopted:

From factual data made available to the Special Committee on Alcoholism appointed by the Council to determine the Council's position of alcoholism as a disease, the Committee has come to the conclusion that:

a. Alcoholics are sick people;

b. The solution of the problem requires active participation on the part of the medical profession of Missouri;

c. The most effectual program directed toward the prevention of, and arrest of, alcoholism must be activated and maintained at local levels;

d. The Council urges the members of the Missouri State Medical Association to participate in the activities of adequately organized local groups to attack the problem of alcoholism;

e. The Council recommend to the House of Delegates at its next regular meeting the creation of an advisory committee on alcoholism, its principal duties being to study the subject and to advise various county medical society groups, who may interest themselves in the subject, as to how they might direct their activities most effectively.

Contract With Veterans Administration

Mr. O'Brien read a letter from the Veterans Administration asking that the contract which has been in effect be renewed on June 30, when the present one will expire. This was discussed from the standpoint of it setting a precedent which might be used by other organizations. It was decided that action on this be delayed until it could be further discussed.

Committee on Venereal Disease

Dr. Sewell asked approval of the Council for the Committee on Venereal Disease to recommend to the State Division of Health that the Midwest Treatment Center be continued and that six investigators be appointed by the Division to seek out venereal disease contacts, thereby further combatting the disease, and that district clinics be set up in appropriate places. It was brought out in discussion that the census at the Treatment Center had been dropping constantly and that also doctors were seeing fewer cases and that it was doubtful if the work needed acceleration. The committee, upon motion of Dr. Virden, was asked to reconsider its report with the recommendation that inasmuch as the census of the disease is dropping at the Midwest Medical Center, that it be considered that the Center be closed at the end of this year, and that the doctors be better informed on obtaining drugs from the Division of Health for treating these cases.

Care of the Indigent

Attention was called to the meeting of June 2 when the care of the indigent was fully discussed. Upon motion of Dr. Virden, it was voted that Dr. Hamilton's proposals concerning indigent care be approved in principle and be referred to a committee with power to set up a pilot plan in one Councilor District in the state to determine how best to carry out the obtaining of medical care for the indigent persons and rehabilitation when possible. Drs. Buhler, chairman, Bohrer and

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Dowell, with Drs. Virden and Bloom, ex officio, were appointed on this committee.

A. M. A. Dues

The following report on dues of the American Medical Association was presented by Mr. O'Brien: District 1, 131 paid, 18 exempt of a total of 249 members; District 2, 63 paid, 17 exempt of 129 members; District 3, 783 paid, 23 exempt of 1,319 members; District 4, 159 paid, 22 exempt of 373 members; District 5, 82 paid, 3 exempt of 159 members; District 6, 71 paid, 10 exempt of 149 members; District 7, 418 paid, 14 exempt of 656 members; District 8, 144 paid, 14 exempt of 272 members; District 9, 36 paid, 2 exempt of 71 members; District 10, 101 paid, 9 exempt of 196 members; a total of 1,988 paid, 132 exempt, of 3,572 members.

Annual Session 1951

Dr. Buhler reported on plans for the 1951 Annual Session, saying that there was a possibility of having color television again, but that the program had been planned with general meetings, medical and surgical programs presented concurrently, a clinical pathologic conference, with the program made up principally by Missouri men, about six guest speakers to be invited.

Postgraduate Work

Dr. Buhler reported that organizations interested in postgraduate work in the state had been asked to have a representative of their organization meet with a committee of the Association to work out coordination of this work. He stated that a meeting would be held with these representatives as soon as they were made known. Audiovisual programs were discussed as part of the postgraduate work. Upon motion of Dr. Virden, Dr. Buhler's report was approved and the committee was instructed to go ahead with the work as outlined; also the committee was empowered to purchase a sound projector.

Missouri Health Council

Mr. McIntyre reported on the recent annual meeting of the Missouri Health Council at which Dr. Haven Emerson, New York, was the principal speaker. He pointed out that in spite of a large attendance, few physicians were present. He stated that there are twenty-four state wide organizations and eleven county health councils in the Missouri Health Council. Copies of "Functions of the Health Council" by Robert Yoho, of the Indiana State Board of Health, were distributed.

Audrain County Hospital Suit

Mr. O'Brien reviewed the Audrain County Hospital suit which is now being heard and said that the hearing would continue during the next week and that the outcome would be reported to members as soon as possible.

Community Health League

Dr. Elliott spoke briefly on the Community Health League, urging Councilors to promote membership in the League and saying that a meeting of the League would be held in the near future.

Civilian Defense

Dr. Mueller, of the Association Committee on Civilian Defense, and Dr. Sewell, appointed by the Governor to study civilian defense in connection with atomic warfare, reported to the Council. Dr. Sewell said that recommendations were to be submitted to the Adjutant General of Missouri and asked that the Association Committee assist in these recommendations. It was decided that these two committees should work together and that they should recommend plans for emergency care; that the committee should volunteer its services to the Governor.

Woman's Auxiliary

Dr. Buhler discussed the work of the Woman's Auxiliary and presented the following four point program for the Auxiliary: (1) Essay contest; (2) assist in the national educational campaign; (3) provide programs for women at the Councilor District meetings which would be of value; (4) survey counties to find the number of physicians and families who are registered to vote and urge those that are not to do so. Upon motion of Dr. Bohrer, this program was approved.

Blue Cross

Blue Cross, especially in relation to the resolution which was passed by the House of Delegates, was discussed.

Veteran's Contract

Upon motion of Dr. Buhler, it was voted that the contract with the Veterans Administration be renewed and a resolution was passed explaining the policy of the Association regarding fee schedules.

Contract by Blue Cross With Osteopathic Hospital

The recent action of the St. Louis Blue Cross in entering into a contract with an osteopathic hospital was discussed. It was pointed out that the action is before the Blue Cross Board for possible rescinding. Upon motion of Dr. Bloom, it was voted that the Council should voice its objections to such a contract.

Interns and Residents

The resolution on the action of the Council on Medical Education and Hospitals of the American Medical Association in changing the rating of a hospital in regard to interns and residents without prior notice to the hospital was discussed. It was pointed out that this resolution had been passed by the House of Delegates for presentation to the House of the A. M. A. Dr. Allee suggested that the wording of the resolution be changed and that supportive evidence be given him. Upon motion of Dr. Bohrer, it was voted that a modified resolution be prepared and presented to the American Medical Association.

Release of the Democratic Committee

The following release from the Publicity Division of the Democratic Committee, Washington, D. C., was read:

"A booklet explaining the Democratic Party's national health program is being distributed to Party leaders all over the country, William M. Boyle, Jr., Chairman of the Democratic National Committee, announced today.

"The thirty-two page green and white booklet is entitled, 'Better Medical Care That *You* Can Afford.'

"The booklet points out that the program advocated by the President and the Democratic National Committee calls for: (1) More medical education; (2) More medical research; (3) More hospitals and health centers; (4) More local public health work; (5) More health protection for babies and children; (6) Application of the insurance principle to spread the cost of medical care and keep unexpected illness from becoming a financial disaster to millions of Americans.

"The booklet makes it clear that the balanced program, embodied in pending legislation and in pro-

posals advocated by the President, Federal Security Administrator Oscar Ewing, Administration leaders and Democrats in the House and the Senate, is NOT, as opponents have sometimes charged, "Socialized medicine."

"The booklet also makes it clear that the patient would be free to choose his own doctor and the doctor would be free to accept or reject new patients and that the program would be locally administered.

"In announcing the distribution of the booklet, Chairman Boyle said: "This inexpensive, factual presentation of the health program of the Democratic Party is deliberately devoid of the emotional arguments and of the distortions used by opponents of the measure in their multi-million dollar campaign of opposition. It reflects our confidence that the people are more interested in facts than in name-calling when they make up their minds on this important issue which affects every American Citizen."

"The booklet is attached."

Legislation

Mr. O'Brien reported that H. R. 6000, regarding total and permanent disability benefits had been amended by the Senate Committee to strike out Section 7 which was opposed by the American Medical Association; that no action had been taken on the school health bill, S. B. 1411, nor on S. B. 1453, dealing with medical education.

Coroner System

Dr. Buhler informed the Council that the Missouri Society of Pathologists is working on a bill to be presented in the legislature to do away with the present coroner system and establish in its stead a medical examiners system.

Kessler Testimony

Dr. Mueller read from the report from the Washington office of the American Medical Association, giving testimony presented by Dr. H. H. Kessler before a House Committee which was detrimental to the medical profession and professed that he spoke representing the American Medical Association. Dr. Mueller also read correspondence between the president of the St. Louis Medical Society and Dr. Lawrence and Dr. Henderson attempting to determine why such testimony was allowed, but which gave no clarification. Upon motion of Dr. Virden, the office was instructed to investigate this further.

ADDRESS BY DR. HENDERSON

In a hard-hitting inaugural address, delivered at San Francisco on June 27 and broadcast coast-to-coast over two radio networks (ABC and Mutual), Elmer L. Henderson, M.D., Louisville, Kentucky, new President of the American Medical Association, charged that "the administration arm of our government has failed us in this generation." He said that "little men with a lust for power" in the executive branch of the government sought to make America "a Socialist State in the pathetic pattern of the socially and economically-bankrupt Nations of Europe."

The Administration in Washington, asserted Dr. Henderson, is "sick with intellectual dishonesty, with avarice, with moral laxity and with reckless excesses."

That condition must be changed, he declared, "if we are to survive as a strong, free people"—and he called upon all of the American people to share the responsibility and to uphold the Nation's ideals of freedom.

To the 144,500 members of the A. M. A., who had received special invitations to hear their new president's address, he said:

"Tonight I call upon every doctor in the United States, no matter how heavy the burdens of his practice may be, to dedicate himself, not only to the protection of the people's physical health, but also to the protection of our American way of life, which is the foundation of our economic health and our political freedom.

"American medicine has become the blazing focal point in a fundamental struggle which may determine whether America remains free, or whether we are to become a socialist state, under the yoke of a government bureaucracy dominated by selfish, cynical men who believe the American people are no longer competent to care for themselves.

"These men of little faith in the American people propose to place all our people, doctors and patients alike, under a shabby, government-dictated medical system which they call Compulsory Health Insurance. But it is not just socialized medicine which they seek. Their real objective is to gain control over all fields of human endeavor—and to strip the American people of self-determination and self-government.

"There is only one essential difference between Socialism and Communism. Under State Socialism human liberty and human dignity die a little more slowly, but they die just as surely!"

Then Dr. Henderson, declaring that "American medicine has led the world in medical advances, and has helped to make this the healthiest, strongest Nation on the face of the globe," blasted the critics of medicine with this significant statement: "It is not American medicine which has failed to measure up to its obligations.

"It is not American business nor American agriculture which has failed—nor the fine, loyal working people of America who have failed.

"It is the administrative arm of our Government in Washington which has failed us in this generation!"

Stressing the fact that many already recognize the dangerous trend toward concentration of power in Washington, Dr. Henderson declared:

"If it were not for the leadership of the American press, in defending our fundamental liberties, American medicine, even now, might be socialized—and under the heel of political dictation.

"The newspapers of America, with few exceptions, have taken a strong stand, not only against socialized medicine, but against all forms of State Socialism in this country—and the doctors of America are proud to take their stand beside the fighting editors of America in the battle to save our freedom and the system of individual initiative which maintains it."

Reviewing the great achievements of American medicine at the halfway mark of the 20th Century—with 19 years added to the life span during the past five decades, with many dreaded diseases conquered, which

were leading killers at the turn of the century, and with the maternal death rate in this country now lower than in any other Nation—the A. M. A. president commented:

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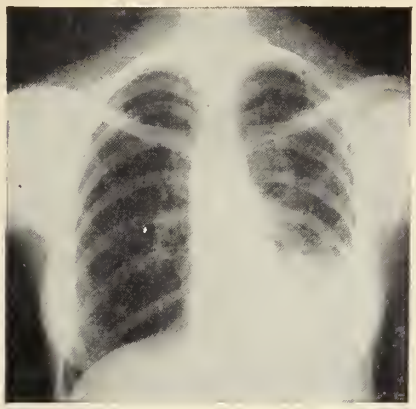
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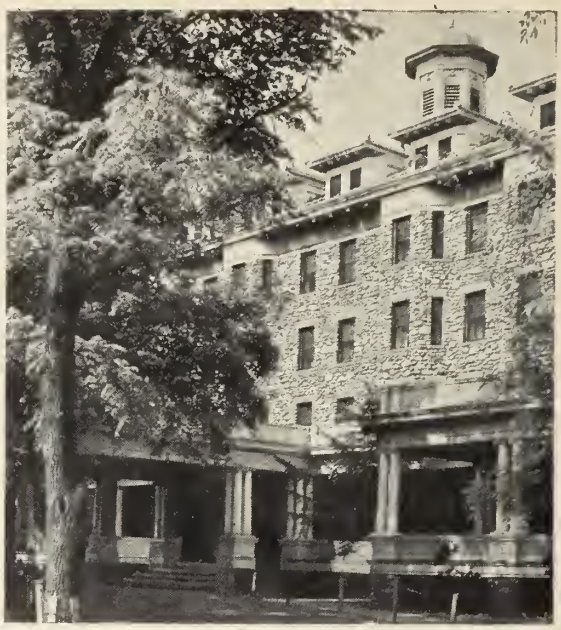
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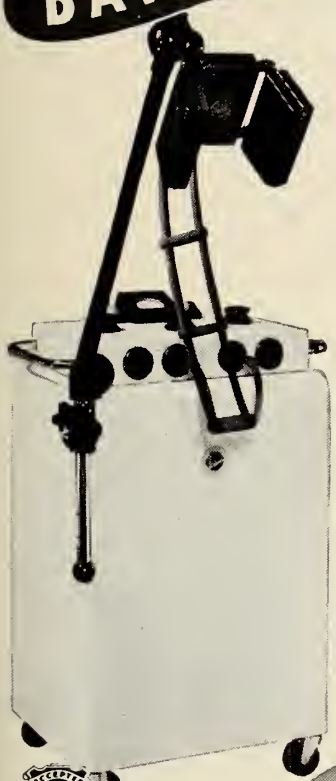
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Address all communications to The Journal of the Missouri State Medical Association, 623 Missouri Theater Building, 634 North Grand Avenue, St. Louis 3. Telephone: Newstead 0404-0405.

Subscription: $3.00 per year; 40 cents per copy.

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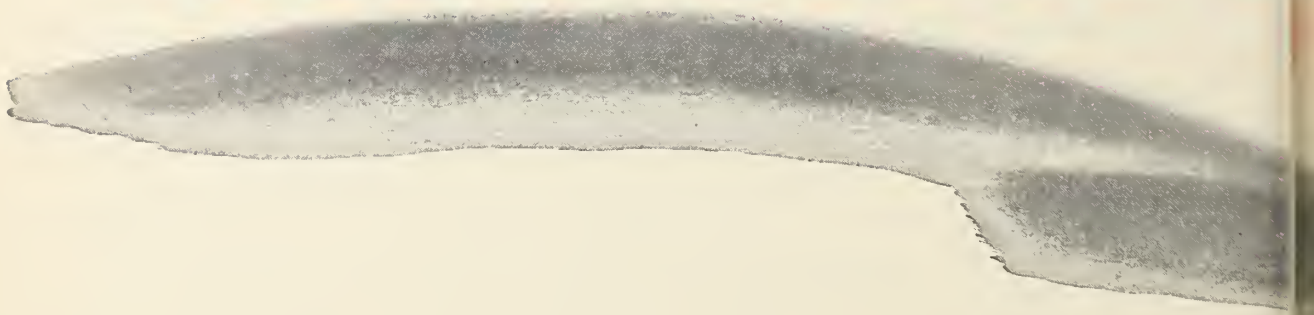
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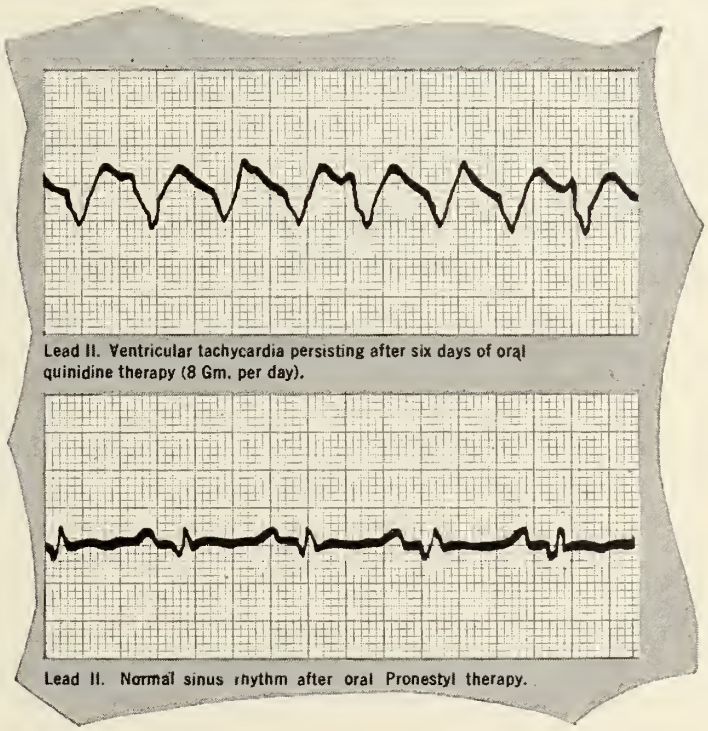
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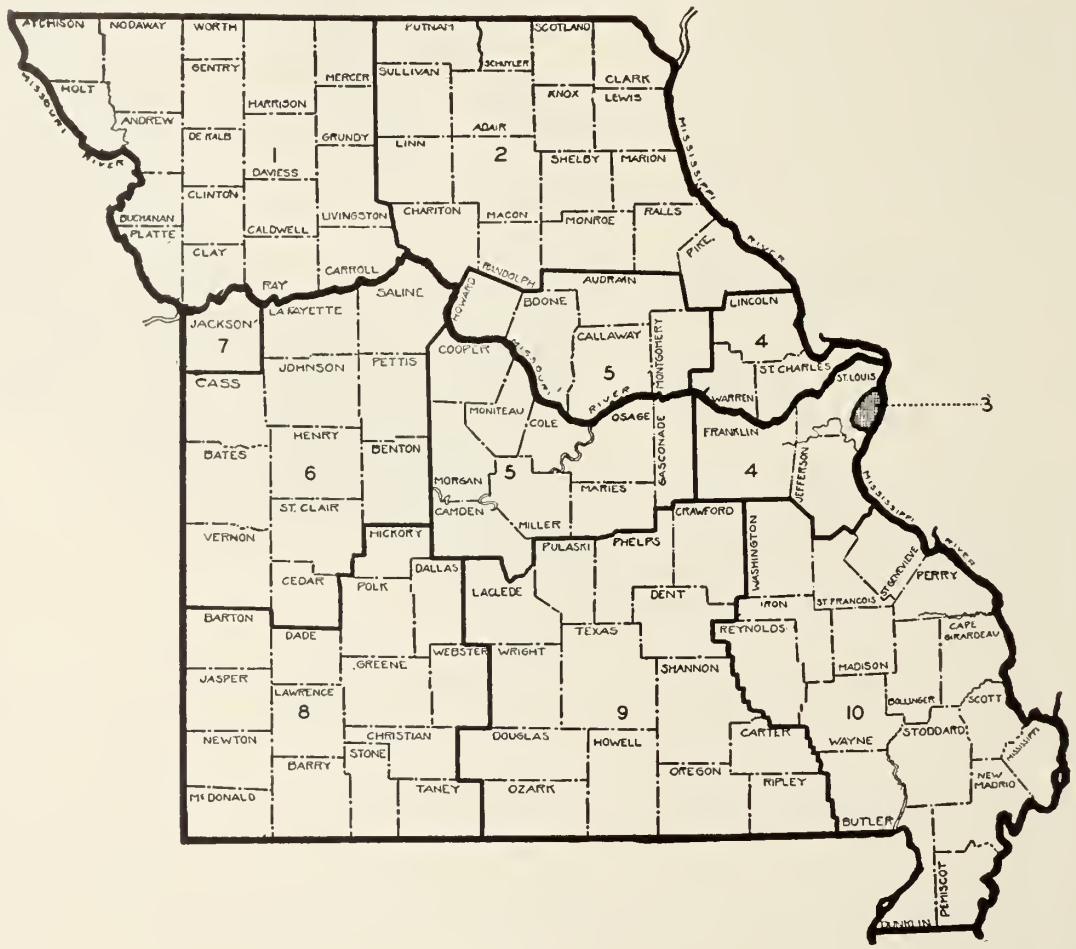
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1. Beckman, H.: Treatment in General Practice. Philadelphia, Saunders, 5th ed., 1946, 704-705.
2. Beckman, H.: Treatment in General Practice. Philadelphia, Saunders, 6th ed., 1948, 744.

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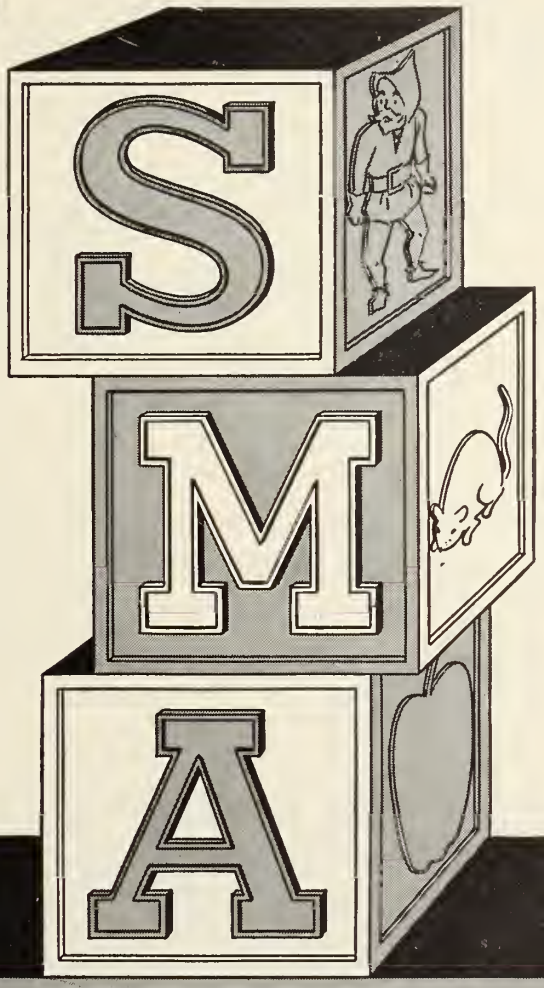
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1. *Withering, W.:* An account of the Foxglove, London, 1785.
2. *Rimmerman, A. B.:* Digilanid and the Therapy of Congestive Heart Disease, Am. J. M. Sc. *209:* 33-41 (Jan.) 1945.

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Volume 47 September, 1950 Number 9

Scientific Articles

SURGICAL LESIONS OF THE STOMACH

WARREN H. COLE, M.D.
CHICAGO

Although it is obvious that carcinoma of the stomach is a surgical disease, it still is agreed by most clinicians that the surgical treatment of peptic ulcer should be confined to its complications. It is fully realized that the vast majority of patients with duodenal ulcer will obtain prompt and satisfactory relief with adequate medical therapy. However, it is granted that to many patients a strict ulcer regimen becomes so monotonous that they actually request surgical treatment. It is true that following an adequate gastrectomy the restrictions of diet and other restrictions can be eliminated almost completely.

Perforated Ulcer.—The vast majority of perforations occur in the duodenum, although not infrequently benign as well as malignant ulcers of the stomach are encountered. Since the manifestations of perforation are so well understood, I will not discuss this phase of perforation except to emphasize one or two points. For example, it is not fully appreciated that the collapse associated with perforation of the ulcer is not a true shock, as is the shock associated with massive hemorrhage from an ulcer. Although the patient may be writhing in pain and have a pallor and cold sweat similar to that encountered in hemorrhagic shock, the pulse is always full and the degree of tachycardia relatively insignificant.

Considerable publicity has been given to the new principle of treating perforated ulcers by conservative means without operation. The two major points in this therapy are gastric decompression and parenteral feeding. Although the preliminary reports following the use of this method have been surprisingly good, the procedure has not received endorsement from the majority of clinicians. At least some of the good reports have occurred in patients who are in a military age group and who obviously have a fine physical reserve. At any rate, I am unwilling to follow the suggestion that conservative treatment is safe and still recommend emergency celiotomy for a perforated ulcer. It is true, however, that when the patient is seen more than from thirty-six to forty-eight hours following perforation it may be desirable to treat the patient conservatively. This is particularly true if the findings have remained local, suggesting that the perforation has been sealed off. A few years ago one would have been unwilling to recommend operation in a delayed case of this type if peritonitis was present. However, at the present time in the presence of general peritonitis one now is much more willing to resort to celiotomy since chemotherapeutic agents are so effective. In fact, chemotherapy is so effective that one needs to give consideration only to the operability of the patient. So often, when the perforation is open and general peritonitis is present, the patient is in a state of shock. However, with adequate fluids and blood it is usually possible to treat this shock so effectively that the patient will tolerate celiotomy. There are obviously many borderline cases of this type in which it would be difficult to make a decision. It must be admitted that in patients who have had perforations from thirty-six to forty-eight hours previously and have general peritonitis the mortality rate will be extremely high.

Hemorrhage From Peptic Ulcer.—Obviously, hemorrhage may vary greatly in its degree. Mild hemorrhage is relatively insignificant, whereas, massive hemorrhage is extremely dangerous in regard to threat to life. Accordingly, one must differentiate carefully between mild and massive hemorrhage when talking about this subject. Few clinicians would suggest operative treatment for a patient seen during the first attack of mild hemorrhage. However, if the patient has had more than two attacks, particularly if his treatment has been an ulcer regime, most clinicians will assume that surgical treatment at least should be considered. Gastrectomy, or gastroenterostomy with vagus sec-

From the Deparment of Surgery, University of Illinois, College of Medicine, Chicago.
Presented at the Centennial Session of the Missouri State Medical Association, St. Louis, March 26 to 29, 1950.

tion are the two procedures most commonly utilized. When gastrectomy is performed, it should be remembered that at least two thirds of the stomach should be removed so that the amount and degree of acid secretion is reduced significantly. Indications for vagus section will be discussed later.

When one speaks of massive hemorrhage the classification should be applied only to patients



Fig. 1. Patient was a male aged 39 with a history of a gnawing pain in the epigastrium of six years duration. Relief was so constant following ingestion of milk and crackers that patient often carried them with him. During the last few months the pain was more severe. On three or four occasions the patient stated he vomited 2 or 3 ounces of bright blood. X-ray with a barium meal revealed a collection of barium (F.T.) diagnosed as a fistulous tract or chronic abscess most likely associated with a "chronic" perforation. However, at operation the patient had no evidence of ulcer. The gall-bladder was subacutely inflamed and contained many stones. This patient illustrates the extreme difficulty of correct differential diagnosis in many cases, and the dire necessity of expending all possible effort toward an accurate diagnosis.

who have bled to the extent that shock is present or imminent and a red blood cell count of 3,000,000 or less is present the following day. It must be emphasized that a red count and hematocrit on the day of hemorrhage are not at all accurate in determining the amount of bleeding since the rapidity of dilution varies so much in different individuals. In the first place, it will take several hours for dilution to take place in all the patients. Therefore, the degree of hemorrhage will have to be determined by the pulse rate and perhaps by the amount of hematemesis.

Although indication for transfusion will be unquestioned when massive hemorrhage is present, it is fully realized that an accurate diagnosis from the standpoint of the location of hemorrhage is essential. On many occasions it will be difficult to decide whether the bleeding is coming from a duodenal ulcer, gastric ulcer, bleeding polyp, gastric carcinoma or esophageal varix. The most important reason why an accurate diagnosis is essential lies in the fact that after emergency operation is decided upon, the type of procedure would be much different in bleeding peptic ulcer from that in bleeding esophageal varix. If the patient has a large liver and large spleen, perhaps with ascites, it can be assumed that portal hypertension is present and esophageal varix may be considered the most likely source of bleeding. On the other hand, if the patient has had a history of ulcer and does not have enlargement of the spleen or liver, the source of bleeding should obviously be peptic ulcer. Unfortunately, almost half the patients bleeding from peptic ulcer will not have a previous history of ulcer. Under such circumstances, it may be difficult to decide where the bleeding point is. Again one can utilize the negative findings already listed as indicating that an ulcer is the cause of hemorrhage. However, if there is extreme doubt, it appears that a patient can be given barium, by mouth, with little danger to the patient. Ordinarily, the roentgenologist will be able to make the diagnosis, thereby aiding the clinician to establish therapy on a more rational basis. Obviously, other causes of hemorrhage including polyps must be considered in differential diagnosis.

A year or two ago, Daly and associates[1] recommended the use of buffered thrombin solution in the treatment of bleeding ulcer. In 100 patients with hemorrhage from ulcer they controlled the bleeding in eighty-seven; in eight additional patients the bleeding was controlled temporarily but it recurred. In five, operation was carried out. More recently, Kennedy and associates[2] have recommended the use of gelfoam and thrombin by mouth in the control of bleeding ulcer. In brief, they recommend giving two tablespoonsful of gelfoam mixed with two ounces of milk and cream every two hours. Immediately following this the patients are given 250 units of thrombin solution which is prepared by dissolving 1,000 units of thrombin in 200 cc. of water. Fifty cc. containing 250 units of this solution is then given after the gelfoam. Kennedy and associates report good results with this method, although more experience with the procedure would obviously be needed before it can be recommended as a routine procedure.

Obstruction.—Fortunately only a small portion of duodenal ulcers result in obstruction, but it is obvious that an emergency situation develops when an obstruction is formed. Usually a close follow-up of the history will give a fairly accurate index as to the time obstruction develops. For example, in the average patient with duodenal ulcer there is a history of relief of epigastric distress following the ingestion of food or alkalis. If the patient should inform the physician that for the last months or years, food and alkalis have afforded relief from the dyspeptic symptoms, but that during the last few weeks relief is not obtained by eating or taking alkalis, it may be assumed that obstruction is developing. Often, indeed, the distress becomes aggravated by ingestion of food. Likewise, a cramplike type of pain sometimes is superimposed

on the dyspeptic symptoms. Unfortunately, vomiting cannot be used as an accurate index of the development or degree of obstruction. Often a patient may give a history of no alleviation of symptoms following ingestion of food and vomiting no oftener than once or twice a week even though a six hour film following ingestion of barium may reveal almost 100 per cent retention. (See Fig. 2.) This is explained in part by the fact that the patient gradually learns that food produces discomfort. Accordingly, he begins to eat less but changes his dietary habits so gradually that he may not appreciate that he is eating only from one half to two thirds the required amount. Therefore, he may show considerable loss of weight even though vomiting is only minimal. The gradual dilation of the stomach also may be related to the infrequency of vomiting.

Accordingly, the history cannot be relied upon to give accurate information as to the presence or absence of vomiting. X-ray studies utilizing barium will be quite accurate, but the insertion of a Levin tube into the stomach will be much cheaper and can be performed much more rapidly than x-ray studies. The test for retention usually is performed by having the patient refrain from taking anything by mouth throughout the night and aspirating the stomach the next morning. If no more than from 50 to 75 cc. of fluid is obtained, one is safe in assuming that obstruction is minimal or absent. If more than 100 cc. of fluid are obtained, it may be assumed that obstruction is present. The amount of fluid obtained will vary with the degree of obstruction. It should be emphasized, however, that neither x-ray studies nor determinations of gastric residue are entirely accurate, particularly in the borderline cases. Pyloric spasm is another factor which will minimize the accuracy of the degree of retention, in that an acute attack of pyloric spasm may result in almost complete obstruction, although only of short duration. Close questioning usually will reveal pyloric spasm, insofar as a history of ingestion of alcohol and improper food a day or so preceding the attack may allow one to make the proper assumption that the obstructive signs are due to pyloric spasm. Resumption of a strict ulcer regime following twenty-four to forty-eight hours decompression usually will clear up these attacks of pyloric spasm.

When the amount of retention, as demonstrated by x-ray following ingestion of barium is minimal, there frequently will be great difficulty in determining whether or not the obstruction is actually significant. Experience shows that a retention of barium of less than 25 per cent six hours after ingestion of barium meal is not sufficient evidence to justify consideration of operative interference. On many occasions, under a strict ulcer diet with alkaline therapy including Amphojel, the dyspeptic symptoms including even vomiting may disappear. (See Fig. 3)

When it becomes obvious that the obstruction is organic in type and is of sufficient magnitude to produce vomiting, loss of weight and aggravation of distress following ingestion of food, operative interference is usually justifiable. Under these circumstances there may be some difference of opinion as to the type of procedure indicated. However, if the patient is in fairly good physical



Fig. 2. The history of vomiting is a poor index of obstruction. The film reproduced was taken six hours after a barium meal in a patient with almost complete obstruction due to duodenal ulcer. Yet, this patient had vomited only once or twice per week during the four or five week period when other symptoms indicated the ulcer may have been present.

condition and obstruction is not complete, resection of the stomach usually is tolerated well and will give good results in the average case, particularly if at least two thirds of the stomach is removed.

Intractable Ulcer.—Intractability may be considered a usual complication of peptic ulcer. Fortunately not more than 10 per cent of doudenal ulcers become intractable. Patients with this complication are usually fairly young and of a nervous disposition. With few exceptions the amount of free acid is high, being found in quantities as great as 75 units without histamine. If the patient has been working overtime and has an apprehensive disposition, a vacation usually will relieve the symptoms. However, with few exceptions the symptoms return again when the patient goes back to work and intractability recurs. Since these patients are so uncomfortable and cannot be relieved by food and alkalis, operative treatment is fairly strongly indicated. When the acid content of the stomach is high and the patient is an apprehensive type the amount of stomach removed at resection must be at least three fourths.

Gastric Ulcer.—The medical treatment of gastric ulcer carries with it an enormous responsibility because of the extreme difficulty in determining whether or not the ulcer is malignant. It is not fully realized that clinically it may be impossible to detect malignancy in a gastric ulcer. In a study of 512 patients with gastric ulcer, during the last



Fig. 3. The five hour film shown reveals about 25 per cent retention in a patient with ulcer symptoms of many years duration, but with inadequate dietary restrictions. At the time this film was taken the patient was having severe ulcer symptoms including vomiting. However, after a strict milk and cream diet with Amphojel, all symptoms disappeared, indicating that at least a great part of the obstruction was due to pyloric spasm. If symptoms are not improved sharply in such patients after institution of good medical therapy, early operation may be imperative.

ten years, Welch and Allen[3] noted that the error in detecting these carcinomas was 10 per cent. However, the figure in their previous series was 14 per cent. As a matter of fact, the incidence is higher in some other series. In general, it is more difficult to detect malignancy when the ulcer is located near the cardia. Welch and Allen noted that about 20 per cent of patients with carcinoma have a variable amount of hydrochloric acid in the gastric contents. However, they emphasize the fact that if no free acid is present following histamine, carcinoma is usually present. In their studies, massive hemorrhage was of no significance in detecting malignant from benign ulcers since it occurred in 6 per cent of the former and 9 per cent of the latter lesions. Likewise, perforation was of no value in differentiating the two types of lesion since it was about as frequent in benign as in malignant ulcer. Welch and Allen noted the important fact that the size of the ulcer, previously considered important in differentiating malignant from benign lesions is of little value in this differentiation. For example, the average size of resected malignant ulcers was 1.7 cm. in diameter, whereas the average diameter of benign ulcers was 1.6 cm. It is obvious, therefore, that the size of the ulcer cannot be used as an index of likelihood of carcinoma.

Years ago, Eusterman emphasized the fact that careful dieting and good medical treatment could eliminate the symptoms of early carcinoma of the stomach and actually could result in eradication of the deformity of the ulcer on x-ray. In a recent study of 270 gastric operations, Grimes and Bell[4] noted that thirteen of twenty-four ulcers on the lesser curvature of the stomach were malignant. They likewise noted that acid values in the stomach could be misleading in detecting carcinoma since only five in twenty-four malignant gastric ulcers had a total lack of free acid. Grimes and Bell also noted that the size of the ulcer was no index as to the possibility of malignancy, as 71 per cent of malignant ulcers in their series had a diameter of 3 cms. or less, whereas 75 per cent of the benign ulcers had a diameter of 3 cms. or less.

There is still controversy as to whether or not carcinoma may develop in a gastric ulcer. However, in a recent study, Grimes and Bell seem to be fairly firmly convinced that malignant transformation can develop.

Regardless of whether or not carcinoma may be superimposed on a benign ulcer of the stomach, the treatment of gastric ulcer by medical means over long periods of time remains a dangerous procedure because of the great difficulty in differentiating a benign from a malignant ulcer. If the patient is quite young it might be assumed with considerable safety that the ulcer was benign. In general, the duration of the ulcer is of some value in differentiating the two types, particularly since the history of four or five years duration in a patient still in fairly good physical condition suggests strongly that the ulcer is benign. If the patient should have symptoms of no more than a few months duration, then no value can be attached to this information.

Present Status of Vagus Section.—There is still no agreement as to the value of vagus section in peptic ulcer, although several salient facts are clearly understood. For example, it is well known that vagus section should not be utilized in gastric ulcer, primarily because the recurrence rate is fairly high and because marginal ulcers seldom develop following gastrectomy. On the other hand, almost all surgeons agree that vagus section is quite effective in the treatment of marginal ulcers. It should be remembered, however, that if the ulceration of the jejunum at the stoma is massive, obstruction may develop when granulation tissue is replaced by scar tissue. I have had fairly good results following vagus resection but I am utilizing it less frequently than a few years ago, largely because of waiting for follow-up studies on patients having had the operation performed. Vagus section

is still used in elderly patients who are poor risks and perhaps have considerable obstruction. It should be emphasized that along with the vagus section a gastroenterostomy must be performed to prevent obstructive symptoms due to spasm and healing of the ulcer with stenosis

Carcinoma of the Stomach.—The treatment of carcinoma of the stomach remains quite unsatisfactory, largely because the five year survival rate is so poor. The report of Pack and McNeer[5] studying patients between 1932 and 1946 is probably about as favorable as any available. Their resectability rate was 48 per cent. Their five year survival rate from gastrectomy in seventy-five patients was 34.7 per cent. In their series the operative mortality rate was 9.8 per cent. The low rate of resectability is an indication that the patients are seen too late. It is well known that symptoms of carcinoma of the stomach are insidious. The most common symptom is dyspepsia, which is present in so many other diseases and is complained of by so many people that its true significance might not be appreciated in the presence of carcinoma. It is true that vomiting and bleeding are relatively late symptoms. Likewise, pain is usually present in early carcinoma and accordingly must be considered a late symptom. Since significant symptoms are so seldom encountered in the early stages of carcinoma of the stomach, it is obvious that the only diagnostic improvement which can be made must be achieved by more frequent x-ray studies, because x-ray examination is remarkably accurate. One might raise the objection to the frequent x-ray examinations of the stomach that the expense would not justify the number of carcinomas found. It is up to the medical profession to find a way of having x-ray studies of the stomach performed with low expense and with considerable accuracy, because it has such great value in making the diagnosis.

The low five year survival rate and the frequency of recurrence of tumor in the remnant of the stomach left following resection have led many surgeons to advocate more radical gastrectomy. Scott and Longmire[6] have reported sixty-three total gastrectomies for carcinoma, although in many of that series the tumor could have been removed fairly effectively with a subtotal gastric resection. Their series is too recent to allow any deductions regarding five year survival rates. However, it is significant that in their series three patients who could not have been treated by subtotal gastrectomy were alive four years after total gastrectomy. I am convinced that a more liberal use of total gastrectomy will significantly increase the percentage of five year survival rates. However, before arriving at a radical impression that all gastrectomies should be total, one must survey the mortality rate. It is difficult to arrive at a mortality rate following gastrectomy at the present time, largely because it has been reduced considerably during the last few years. If a series includes patients during a period as long as ten or fifteen years, the operative mortality rate even in good hands may be as high as 8 to 10 per cent. If the studies are limited to a recent three or four year period, mortality rates may be as low as 4 or 5 per cent in carcinoma, and 2 to 3 per cent in gastrectomy for peptic ulcer. In Scott and Longmire's series of sixty-three patients upon whom total gastrectomy was performed, the mortality rate was 9.5 per cent. In a series of fourteen total gastrectomies performed at the Illinois Research Hospital, only one patient has been lost constituting a mortality rate of about 7. This series obviously is too small to use in determination of mortality rate.

Types of Operation.—It is not my intention to discuss operative technic in this presentation. However, it should be emphasized that the types of operation for gastrectomy differ little now from the methods used twenty-five years ago. The great improvement in the operative mortality rate must therefore be attributed to good preoperative and postoperative care rather than the type of operation. The posterior Polya operation remains a very popular one and at the present time is probably performed with greater frequency than any of the various types of operation. Some surgeons utilize an anterior Polya operation because it can be accomplished more rapidly, although some surgeons contend that the long arm of proximal jejunum necessary in the performance of the anterior Polya gastrectomy would result in a greater incidence of marginal ulcer. Gray and Williams[7] have noted that 85 per cent of their patients having the anterior operation had complete relief, whereas only 77 per cent of patients having the posterior operation had complete relief. It is now agreed that it is not essential to remove the ulcer in the duodenum providing the surgeon is careful to remove all of the pyloric mucous membrane. It is obviously desirable to remove the ulcer if possible, but I am convinced that it is better to leave the ulcer *in situ* if attempts to remove it might leave such a small stump of duodenum as to jeopardize the inversion. Reference has already been made to the fact that total gastrectomy can be performed with a low mortality rate and may improve the five year survival rate for carcinoma. It must be emphasized, however, that a total gastrectomy is a much more formidable procedure than subtotal, particularly if it is done by combined abdomino-thoracic incision as is favored by myself. Nevertheless, if some care is taken in preoperative and postoperative care, it is doubtful that the mortality rate will be much higher than that for subtotal gastrectomy.

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THE VALUE OF THE ANESTHESIOLOGIST TO THE VARIOUS FIELDS OF MEDICINE AND SURGERY

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The services rendered by the anesthesiologist have increased progressively during recent years, either as a result of his own individual initiative or at the request of his surgeons. This expansion of duties has gone hand in hand with improved training facilities in anesthesia in various centers throughout the country. As the skill and versatility of the anesthesiologist reached high levels, it became apparent that his services and experience might be utilized in a variety of ways in addition to his major function of administering anesthetics.

In recent years training in anesthesia has been expanded in many centers to cover a wider range of subjects and skills. Much stress is placed on a thorough knowledge of the basic sciences, particularly physiology and pharmacology, with detailed knowledge of the vital functions of respiration, circulation and the nervous system in both health and disease. In order to evaluate accurately the physical state of a patient and estimate the degree of risk from both anesthesia and surgery, the anesthesiologist often must assume the role of the internist and training has been expanded accordingly. To aid in the estimation of cardiac function and reserve he must have a working knowledge of electrocardiography. In more recent years it has been found that the electro-encephalogram can supply accurate and useful information in regard to a patient's behavior under anesthesia, particularly concerning depth of anesthesia and in detection of danger before signs are apparent by direct observation. The same applies to the use of the oximeter during anesthesia, by means of which anoxemia can be detected and corrected long before the physical signs of lack of oxygen are apparent. The training of an anesthesiologist includes becoming familiar with the use of all these devices.

With all the new instruments for accurate measurement of various factors in the anesthetized patient the present-day anesthesiologist also must be trained to be somewhat of an engineer. Many of the new measuring devices were used in the operating room at first more for the accumulating of scientific data than for known practical contributions. However, it was found that many of these devices served a useful purpose in that they provided anesthesiologists with methods of observing more accurately signs of danger in the anesthetized patient. Small portable units for the continuous recording of electrocardiogram, electro-encephalogram and oxygen saturation of arterial blood during operations have made the use of such equipment more practical during operation. The information that these machines give results in a degree of control over the anesthetized patient hitherto impossible to attain by the most acute and experienced clinical observation. They are playing an important part in making anesthesia safer, particularly for patients for whom the risk of operation is greater than average. Understanding and ability to use these machines are now part of the training of anesthesiologists.

Before the ways in which the anesthesiologist may be useful in the various fields of medicine and surgery are elaborated, it must be borne in mind that the field of anesthesia is somewhat unique among the specialty groups. Those who are in institutions giving advanced training in anesthesiology try, or should try, to impress on students that anesthesiology is a "service" specialty and that the success or failure of the anesthesiologist will depend largely on the quality, promptness and scope of the service rendered. Furthermore, it will depend to no small extent on his ability to cooperate and get along with the many and varied types of medical, nursing and hospital personnel with whom he has to deal.

THE ANESTHESIOLOGIST AS PART OF THE SURGICAL TEAM

The functions of the anesthesiologist within the surgical team depend on his ability and the confidence he has built up among the surgeons for whom he works. If he fulfills the function for which he was trained, he can lift most of the load of the operative patient's welfare from the surgeon, leaving the surgeon free to concentrate his whole attention on the surgical procedure.

The anesthesiologist will check the patient's record before operation for anything unusual in the history or physical examination which might bear on the anesthetic management. He will discuss the anesthetic with the patient and give any assurance that is necessary. He will order pre-anesthetic medication according to the patient's requirements so that the patient undergoes the minimum of phychic trauma and emotional strain during the twelve hours preceding the operation. This is important from the standpoint of the patient's operative and postoperative welfare.

If the operation is to be extensive, or if the patient is in poor physical state, the anesthesiologist will prepare for supportive measures prior to the operation. This will include cross-matching of the pa-

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Read at the Annual Session of the Missouri State Medical Association, St. Louis, March 29, 1950.

tient's blood with that of a donor. The anesthesiologist will possibly insert a 15 gauge needle into a vein before he begins to adminster the anesthetic so that supportive measures can be instituted without delay should the need arise during the operation. In this way he prepares for trouble before it occurs. When a patient shows signs that atelectasis is developing, either during or at the end of an operation, immediate bronchoscopic aspiration may obviate postoperative pulmonary complications. It is much easier to do this before the patient leaves the operating table than to have to do it during the first twenty-four hours after operation. The anesthesiologist who has been trained in bronchoscopy often can render his surgeons prompt and valuable service in the treatment of postoperative pulmonary complications.

The institution of post-anesthesia recovery rooms in hospitals throughout the country is now recognized as a valuable step forward in the care of surgical patients. Not only does it lighten the load on the nursing personnel on the hospital floors but the patients can be observed more closely and treated more effectively during the immediate critical postoperative period.

The administration of the recovery room is an additional duty that the anesthesiologist has assumed since the problems that arise there are largely related to the anesthesia. The recovery room is equipped as completely as the anesthesia rooms in surgery—with oxygen, suction, all types of airways, resuscitative devices, stimulants and supportive agents. Postoperative shock, airway difficulties or respiratory depression can be detected and treated with a minimum of delay. When a patient leaves the recovery room, he usually is past the critical period in his recovery after anesthesia. The time no doubt will come when all large hospitals will be equipped with recovery rooms adjacent to the operating rooms.

The anesthesiologist's position in the operating room and as an integral part of the surgical team is unique. By looking ahead and planning the operating schedule carefully he can keep the whole surgical list running smoothly with minimal delay between cases. Perhaps there is nothing a surgeon appreciates more than an anesthetist who has his patient ready and everything under control when he walks into the operating room and one who is constantly alert to prevent approaching trouble before it becomes serious. There is no duty too unimportant for the anesthesiologist to perform, provided it makes for better and more efficient service to the surgical team. Perhaps it may consist only of tying a gown or taking a message. It is taken for granted that the trained anesthesiologist can conduct satisfactory anesthesia with anesthetics of any type. It is his ability to cooperate fully with all the members of the surgical team and to keep the show running smoothly that will classify him as a superior anesthesiologist.

I should like to say a few words relative to the surgeon-anesthesiologist relationship for this is important. Many irritating happenings crop up for the anesthesiologist in the course of a long surgical list. If he is a diplomat, he will overlook inconsequential things and smooth them over for the good of the whole. If he takes to heart every irritable word directed at him by the surgeon, who also is under stress, a constant state of friction is built up which works to the disadvantage of the whole team, including the patient.

This "give-and-take" attitude must, of course, work both ways if smooth teamwork is to be accomplished. The surgeon must realize some of the problems that beset the anesthesiologist in order to judge whether or not his patients are receiving proper anesthetic care. The toxic effects of anesthetic agents vary from patient to patient. The course of the anesthesia for patients who react poorly often is rough and unsatisfactory, in spite of the most skillful management. Under such circumstances, tolerance on the part of the surgeon toward the struggling anesthesiologist will be much appreciated by the latter and will pay the surgeon dividends in future cases.

It is a pleasure to watch a well coordinated and thoroughly cooperative surgeon-anesthesiologist team in action, each appreciative of the other's problems and the stress under which he is working; each trying to make the operative load a little easier for the other and both united in providing the maximal welfare for the patient. Such a happy association certainly makes for better surgical care of the patient and lessens the incidence of coronary thrombosis among surgeons and nervous breakdowns among anesthesiologists.

The onus of maintaining this state of "operating room Utopia" must rest equally on the shoulders of both surgeon and anesthesiologist, if it continues to work. The anesthesiologist must not overlook the fact that he is dealing with the surgeon's patient. Naturally, the surgeon will be interested in the type of anesthesia chosen, and no doubt will have favorite anesthetic agents and methods. These preferences the anesthesiologist should honor whenever possible. While the anesthesiologist is best equipped to judge the most suitable anesthetic for a given patient, thorough understanding and cooperation between surgeon and anesthesiologist will automatically iron out most difficulties regarding choice of anesthetic.

The economic setup of the anesthesiologist should interest the surgeon since the anesthesiologist's livelihood is derived from the surgeon and his patients. If the surgeon is satisfied with his anesthesiologist and the services he is rendering, then it would seem natural that he would wish his anesthesiologist to derive remuneration commensurate with what he has to offer the surgical team. This interest will pay the surgeon dividends in more ways than one, since an individual who is doing well is happy and when he is happy he is most efficient and will be willing to contribute more than his share of time and effort to the surgeon and his patient. These things are stressed in order

to point out the over-all value of surgical teamwork, both in and out of the operating room.

OTHER SERVICES OF ANESTHESIOLOGISTS

What are some of the specialized fields in which the anesthesiologist may be of service to his various medical and surgical associates? These comprise a long list which may include intravenous and supportive therapy, blood transfusion, bronchoscopic examinations, diagnostic and therapeutic nerve block, oxygen and inhalation therapy, resuscitation and many small but important procedures such as venipuncture in difficult cases, sedation for psychotic patients.

Since the anesthesiologist is responsible for the over-all welfare of the surgical patient not only during the operation but in the immediate preoperative and postoperative periods as well, he has taken an increasing interest in supportive measures of all kinds. As a result, many anesthesiologists supervise the administration of blood and blood substitutes and intravenous administration of many types of fluids and therapeutic agents. In order to cope with operative and postoperative pulmonary complications without delay many anesthesiologists are now trained in bronchoscopy and postanesthetic bronchoscopic aspiration.

The alleviation of pain is perhaps the most important function of the anesthesiologist for nonsurgical as well as surgical patients. The experience of the trained anesthesiologist in regional anesthesia has qualified him to deal with the diagnosis and treatment of varied and indeterminate painful conditions. Many anesthesiologists, in recent years, have established so-called pain clinics. More and more medical men, surgeons and neurologists are calling on the anesthesiologists to aid in the diagnosis and treatment of persistent pain which does not yield to ordinary methods of treatment.

By means of suitable nerve blocks the pathways of the pain often can be identified and an estimate can be made as to whether the pain is on a psychoneurotic basis or due to an organic or traumatic lesion. In some cases the injection of a local anesthetic solution will be sufficient to provide relief for long periods. In other cases stronger solutions or even alcohol are required for relief. In certain cases in which severe intractable pain is present, the information derived from nerve block may indicate that surgical section of the nerves is the best means of obtaining lasting relief.

This group of patients is often a real problem both to physicians and to themselves, for persistent pain interferes with their daily work and earning capacity, interrupts their sleep and favors the development of various forms of psychoneuroses. Such patients frequently become exceedingly difficult to handle satisfactorily and are easy prey for the charlatan. It is true that anesthesiologists are unable to cure some of these patients but the majority can be provided with either complete relief or sufficient alleviation to permit them to live a fairly normal life. No group of patients is more grateful than those who are relieved from persistent, severe pain.

Typical of this group are patients suffering from the pain of pancreatitis. Splanchnic block usually provides prompt relief for these. Patients with pain from inoperable cancer are another group that often are benefited by nerve block, thereby cutting down on the amount of narcotics required. Internists now are calling on anesthesiologists more frequently to perform anesthetic block on patients who have anginal pain. Stellate ganglion block has been most successful in a high percentage of these cases.

Then, too, the anesthesiologist often can serve his confreres in other fields of medical practice by diagnostic and therapeutic nerve block.

Inhalation therapy, including oxygen therapy, is another field in which the anesthesiologist often is asked to consult. One of the most frequent calls from the medical service which anesthesiologists receive at the Mayo Clinic is for the treatment of pulmonary edema. In this condition the use of oxygen under positive pressure, either from the regular gas machine or machines made especially for this purpose, can reverse the condition. We are often called on to treat intractable hiccoughs, either by inhalation therapy, phrenic nerve block or injection of curare.

Anesthesiologists are now using procaine intravenously as an adjunct to various anesthetic agents and methods. This can often be used effectively in the treatment of medical conditions such as the itching associated with jaundice, postoperative pain and discomfort, or, pain from any cause.

The neurologists at the Clinic now call the anesthesiologists routinely for the administration of pentothal sodium and curare to psychotic patients undergoing electric shock therapy.

One of the most frequent calls is to institute resuscitative and supportive measures in both surgical and nonsurgical patients. The cause may be accident, shock, hemorrhage, postoperative collapse or pressure of a brain tumor which interferes with respiratory function. Since an adequate airway and oxygenation are vital if such patients are to be saved, the anesthesiologist and his equipment have saved lives which might otherwise have been lost. His skill with a laryngoscope and the passing of intratracheal tubes is one of the most important life-saving measures.

COMMENT

A few of the functions whereby the anesthesiologist may serve doctors in their community has been outlined.

These, and many other duties that the anesthesiologist now assumes, have increased his value not only to the surgical team and the hospital but also to the other physicians, whether they are in general practice or practice a specialty. Many physicians are not yet aware of the variety of services that the modern anesthesiologist is equipped to give. It is not going too far to say that there is no field of medicine or surgery, including general practice,

in which at one time or another the experience of an anesthesiologist is not valuable in helping solve some problem or in instituting some therapeutic measure.

Anesthesia still is a comparatively new specialty and during its earlier years of development progress was slow owing to lack of agents and equipment, lack of training and, more important than any of these, lack of interest by surgeons and medical men in general, as well as the anesthesiologists themselves. Advances along all fronts in the last two or three decades has compensated somewhat for the preliminary inertia in the field of anesthesia. Nevertheless, in spite of recent progress the field has just scratched the surface. As previously stated, anesthesia is a service specialty. It is hoped as time goes on that an increasing number of physicians will take advantage of the services the anesthesiologist has to offer.

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SUBACUTE BACTERIAL ENDOCARDITIS

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ONE OF THE MOST dramatic therapeutic results of the introduction of penicillin and the newer antibiotics has been the cure of bacterial endocarditis. Until the last decade this disease was as nearly 100 per cent fatal as any disease known to man. When sulfonamides failed to cure more than from 5 to 10 per cent of cases, many authorities were of the opinion that this infection would never yield to chemotherapy; but fortunately they were wrong, as it has now been shown beyond any doubt that with intensive and carefully managed antibiotic therapy between 80 and 90 per cent of patients can be cured. It must be emphasized, however, that the disease is not easily cured. Many patients are still dying of bacterial endocarditis unnecessarily, and some of the reasons for this are quite apparent:

1. Failure of physicians to establish the diagnosis early.
2. The tendency to treat all "fevers" blindly with penicillin or sulfonamides (in doses that suppress but do not cure this infection).
3. When the proper diagnosis is made, failure to detect resistant infections because the antibiotic sensitivity of the causative agent is not determined.
4. Therapy which is not sufficiently intensive and continuously maintained.
5. Ignorance of physicians, dentists and patients with valvular heart disease as to the need for prophylaxis with penicillin at the time of tooth extraction, cystoscopy and other operations in infected fields.

Before discussing shortcomings and their possible remedies further, I wish first to consider some of the basic facts about this disease.

Bacterial endocarditis occurs almost always in patients with previous valvular or congenital heart disease. By far the most common predisposing lesion is rheumatic heart disease and, consequently, the mitral and aortic valves are most often affected. Bacteria, which enter the blood stream from infected teeth, urinary tract, nasopharynx, and probably from other sources as well, land on the damaged valve where they grow embedded in fibrin and necrotic valve substance producing the "vegetations" of bacterial endocarditis. Bits of vegetations breaking off are responsible for the embolic lesions so characteristic of this disease.

BACTERIOLOGY

In about 90 per cent of cases the offending organism is a streptococcus of the nonhemolytic variety, some of which produce greening on blood agar (streptococcus viridans), and some no change at all (indifferent or anhemolytic streptococci). Although most of these bacteria are sensitive to penicillin (inhibited in culture media by 0.1 unit per cc. or less), some are highly resistant, especially the group known as enterococci. Since various strains also show widely varying sensitivity to streptomycin, aureomycin and chloromycetin, one is forced to determine the sensitivity of the organism to antibiotics in each individual case, in order to estimate which drugs to use and in what dosage. For this reason it is necessary to transfer patients to a hospital where bacteriologic studies can be done as soon as the diagnosis is seriously suspected, rather than to try rule-of-thumb therapy which often proves inadequate, costly and hazardous to the patient.

DIAGNOSIS

The importance of early diagnosis cannot be too strongly emphasized, and physicians must educate themselves to think of bacterial endocarditis in any patient with valvular heart disease who runs an unexplained fever for more than a few days. In such cases multiple blood cultures should be taken even though other signs and symptoms are absent.

Other findings which are common but not necessarily present include: petechiae, a palpable spleen, clubbing of the fingers, joint pains, tachycardia, changing heart murmurs, elevated sedimentation rate and microscopic hematuria. Osler's nodes, which are tender pea sized nodules appearing in the pads of the fingers and toes and subsiding in a week or so, are practically diagnostic of the disease. Emboli to cerebral vessels cause a variety of neurologic abnormalities, some transitory and some permanent. In elderly patients particularly, attention may not be especially drawn to the heart. The murmurs are often unimpressive at first and constitutional symptoms may predominate leading to a suspicion of malignant disease, tuberculosis and other chronic infections. Kidney involvement may be so prominent as to suggest a primary diagnosis of nephritis. In short, the clinical manifestations are so protean that the differential diagnosis is

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endless, and I come back to my original thesis that all patients with fever and heart murmurs should have blood cultures taken.

BLOOD CULTURES

The finding of several positive blood cultures constitutes the only final means of clinching the diagnosis. Although transient bacteremia due to infected teeth is common, repeated recovery of nonhemolytic streptococci from the blood is almost never found except in subacute bacterial endocarditis. In this disease positive blood cultures can be obtained in more than 90 per cent of cases sooner or later, but in a few instances in which, on other clinical grounds the diagnosis seems unavoidable, the cultures may be sterile for long periods of time —especially after therapy which has suppressed but not eradicated the infection. In this situation also the organisms may grow slowly and not be detectable in culture flasks until after three weeks incubation. It is therefore urged that at least five or six blood cultures be taken before treatment is started and that they be incubated for three weeks before being discarded as negative. If institution of therapy seems urgent, cultures can be taken at hourly intervals if necessary and thus therapy need be delayed but a short time.

TREATMENT

The first patient successfully treated with penicillin has now been followed for more than seven years and is doing well. By now many hundreds have been cured, but no single regimen has emerged which can be recommended with confidence for every case. Furthermore, the dosage of penicillin advocated for the usual case due to a penicillin-sensitive organism has crept up and up because there continues to be a small proportion of failures under any regimen. The failures become fewer, however, as the daily dose and duration of treatment increase. Certain general principles related to therapy are pretty well established:

1. Anticoagulants are not indicated.
2. Sulfonamides are of little value.
3. The optimal duration of a course of therapy is probably from four to six weeks.
4. Daily doses of 2,000,000 units of penicillin are recommended for patients whose infecting organism is sensitive to penicillin (inhibited in vitro by 0.1 unit or cc. or less).
5. The safest method of administering penicillin is intramuscularly every three hours day and night.

Patients whose organism is more resistant to penicillin, or who prove refractory to this therapy need heroic treatment, but can still usually be cured. No rule-of-thumb regimen can be outlined for these cases except to say that good results have been obtained using large doses of penicillin, 10,000,000 units a day or more, plus streptomycin in doses of 2 to 3 grams daily. It may eventually turn out that aureomycin or chloramphenicol will be more satisfactory than streptomycin as adjuncts, but experience with these newer antibiotics in bacterial endocarditis is still limited. Treatment of resistant cases must still be highly individualized and guided largely by the sensitivity of the infecting organism to the available antibiotics singly and in combinations, also taking into account, of course, the patient's response to therapy.

The appraisal of a patient's response to treatment often is exceedingly difficult. Although many show a prompt subsidence of all clinical signs of active infection within a few days, some continue to have low grade fever, occasional embolic phenomena and other disturbing features throughout treatment even though their subsequent course is satisfactory. If blood cultures remain positive for more than a few days in the face of therapy, it is strong evidence that treatment is grossly inadequate. The dose of antibiotics necessary for clearing the bloodstream is far smaller than the curative dose; hence one cannot accept an apparent clinical response with blood cultures becoming negative as evidence that treatment is necessarily adequate. Thus one has to recognize the unpleasant fact that clinical evidence alone may be quite misleading in the appraisal of a patient's status. For this reason one needs information concerning the sensitivity of the infecting organism to antibiotics because, even with this added help, it may still be difficult to judge whether or not a patient is being cured while therapy is in progress.

In general it is not advisable to continue a course of therapy beyond six weeks because if the infection is not controlled by that time, it is unlikely that further prolongation of treatment at the same dosage level will effect a cure. If after six weeks the patient's condition is uncertain, it is better to stop treatment altogether and be prepared to institute a new and more intensive course if the patient should relapse. Relapses rarely occur later than one month after treatment is stopped, and most of them are evident within two weeks.

PROGNOSIS

The infection can be cured in more than 90 per cent of cases, if treatment is intensive, and controlled by careful bacteriologic studies. The deaths which occur in spite of the best available therapy are mostly due to cardiac failure and cerebral accidents, either from emboli or ruptured mycotic aneurysms. These latter complications probably can never be avoided completely, but they can certainly be reduced by early diagnosis and treatment. The rapidity with which valvular damage progresses varies greatly from one case to another depending upon the site of the vegetations and the invasiveness of the bacteria causing the infection. Lesions of the aortic valve appear to result in serious impairment of cardiac function most frequently.

PROPHYLAXIS

Approximately 25 per cent of patients with bacterial endocarditis give a history of tooth extraction preceding the onset of the disease. A significant number of infections also follow instrumentation of the nasopharynx or genito-urinary tract—such procedures as tonsillectomy, sinus operations, cys-

toscopy, curettage of the uterus and even normal delivery. While it does not seem possible to prevent bacteremia completely at the time of these procedures, there is evidence that bacterial endocarditis can be prevented in susceptible patients by sufficiently intensive antibiotic prophylaxis. It is the doctor's responsibility to educate all patients with valvular or congenital heart disease as to the need for such prophylaxis, and they should be warned never to allow operations to be performed without telling the dentist or surgeon of the instructions they have had. What constitutes the best regimen for prophylaxis is not yet known with certainty, but no cases of bacterial endocarditis have been reported following tooth extractions in patients receiving penicillin in doses of 100,000 units every three hours intramuscularly starting at least six hours before operation and continued for at least forty-eight hours. In patients who cannot be hospitalized, procaine penicillin 500,000 units twice daily for the same period is recommended. It seems probable that aureomycin will be useful in prophylaxis not only because of its wide antibacterial spectrum, covering almost all of the organisms both gram positive and gram negative which may commonly enter the bloodstream, but also because it can be given by mouth. Sulfadiazine, however, has not proven adequate, and several cases of bacterial endocarditis have developed in the face of treatment with full doses of this drug.

Euclid Avenue and Kingshighway.

DOCTORS USE NEW DRUG AGAINST TOXIC GOITER

Promising results in treating patients for toxic goiter with a new synthetic drug, tapazol, are reported by two doctors from Wayne University College of Medicine, Detroit.

These findings should be considered preliminary. The drug has been used in only eighteen patients and observations have covered only a six month period, Drs. William S. Reveno and Herbert Rosenbaum say in the August 19 *Journal of the American Medical Association.*

Tapazol is not now generally available to doctors. Its use is limited to experimental studies.

The drug is an antithyroid compound with action twenty-five times as powerful as propylthiouracil, a compound commonly used in treating overactivity of the thyroid gland, according to the doctors. Abatement of symptoms occurred in patients with toxic goiter variously five, six and eight weeks after administration of tapazol was begun, according to the article. Two patients who had relapsed after treatment with propylthiouracil were relieved after fifty-seven and fifty-one days of treatment with tapazol, respectively.

"In the small group of patients observed, tapazol exhibited effective antithyroid activity closely resembling that of propylthiouracil but with a potency approximately twenty-five times greater," the doctors say, adding:

"Toxic reactions were not encountered, but more time and treatment of a larger number of patients will be required for assessment of this highly important factor."

CAUSES OF STERILITY IN THE MALE

WILLIAM F. MELICK, M.D.
ST. LOUIS

PREVIOUS REPORTS in the literature[1, 2, 3] have shown that the male partner is at fault in at least one third of barren marriages. I fortunately have been able to examine the male partner in a number of such marriages. In this reported series of 100 consecutive cases examined, the male has been found to be abnormal in 75 per cent of the cases. This greater incidence of male sterility is readily explained by the fact that many of my patients were sent in because of a poor Huhner test. This selection of patients would readily account for the difference in figures from other series.

Table 1. Sterility Due to Definite Etiologic Causes.

Etiology	Number of Cases
Mumps Orchitis:	
Complete aspermia	4
Occasional dead sperm	9
Endocrine Disturbances:	
Untreated Froehlich's syndrome	2
Mechanical Block (biopsy normal, aspermia):	
Bilateral gonorrheal epididymitis	1
Congenital Defects:*	
Atresia of vas deferens (bilateral)	1
Epididymal detachment (bilateral)	1
Total Cases	18

* Proven by surgical exploration of the scrotum.

In a previous article, the minimum requirements of a careful sterility study have been discussed.[4] To outline them briefly, they consist of the following points:

1. History: (a) Routine history, particularly recent febrile illness, operations, exposure to radiation, diet and habits. (b) Marital history. (c) Sexual history.

2. Physical Examination: (a) Particular emphasis on fat distribution, weight changes and distribution of hair.

3. Urological Examination: (a) Scrotum and contents. (b) Prostate, prostatic secretion and seminal vesicles.

4. Laboratory Studies: (a) Urinalysis and serology. (b) Basal metabolic rate when indicated.

5. Semen Examination: (a) Total volume. (b) Sperm count. (c) Viscosity. (d) Motility. (e) Longevity. (f) Morphology.

6. Testicular Biopsy: (Where indicated.)

In the present series of 100 males examined for sterility evaluation, all have had this outlined work-up. Twenty-five men were found to be completely normal in every way, and seventy-five men were found to be abnormal. It is probably better to say that seventy-five were "presumably at fault." A question might be raised over the "presumably at fault" statement, but as one has the opportunity of seeing the male partner in cases of many barren marriages, one is impressed more and more by the fact that there must be fertility or sterility rela-

From the Department of Urology, St. Louis University School of Medicine.

tivities in both the male and female. It is not at all uncommon to find that one or the other partner has had several children by a previous marriage with no apparent difficulty, but none by the present partner. Thus it seems entirely probable that if a partner with a poor fertility rating is married to one with a high fertility rating, no barrenness is ever experienced. In the light of present knowledge, of course, these relativities cannot be properly evaluated.

Table 2. Sterility Due to Indefinite Etiologic Causes.

	Number of Cases
Aspermia, normal biopsy, no demonstrable block	2
Agenesis on biopsy, no known cause*	2
Marked aberrations in semen studies	45
Slight aberrations in semen studies	8
Total Cases	57

* Unrecognized mumps orchitis?

One would like, and it is indeed sometimes possible, to find a definite etiologic factor responsible for the male sterility. Thus a history of mumps orchitis, associated with physical findings of testicular atrophy, plus aspermia can be said to be a case in which the etiologic factor is definite. One must not, however, make the mistake of assuming that the man who has marked testicular atrophy has a poor sperm count unless confirmed by a semen examination. I have seen two such patients recently who have had almost normal semen studies. Another tragic example comes to mind of a patient recently seen who had been told that he was "sterile" on the basis of atrophic testes and a history of mumps orchitis. Some months after marriage his wife became pregnant and a medico-legal case immediately and sadly developed. I say sadly advisedly, because a semen specimen in his case shows a low count, but perfectly normal, motile sperm. Similarly, blocked tubules due to an old, gonorrheal epididymitis may cause aspermia, yet every patient with old, gonorrheal scarring does not have blockage.

Table 3. Abnormal Semen Studies.

	Number of Cases
Marked Changes from Normal:	
Count 10 million or below with poor motility	12
Count 10 to 20 million, poor motility	5
Count 20 to 30 million, poor motility	4
Count 10 million or below with good motility	3
Count 10 to 20 million, good motility	7
Count 20 to 30 million, good motility	9
Count within normal limits, but no motility	5
Total	45
Slight Changes from Normal:	
Count 35 to 45 million, good motility	4
Count 46 to 55 million, good motility	4
Total	8

Other abnormalities, whose etiology is not well known, however, also frequently are found. These include testicular agenesis on biopsy without demonstrable cause, aspermia with a normal testicular biopsy and no demonstrable cause for blockage and aberrations in the semen studies. This latter group may, of course, be due to insufficient or incomplete hormonal stimulation. Table 1 lists eighteen patients with known etiologic causes for the sterility. The other cases of sterility, fifty-seven in all, are listed in table 2 according to the abnormality found. In table 3 the group showing only alteration in sperm counts are listed according to the degree of variation from normal.

SUMMARY

1. Of 100 men examined, seventy-five cases of male sterility were found.

2. The higher incidence of sterility than reported in the literature is explained by the partial selection of cases for study.

3. In fifty-seven cases, no exact cause could be found for the abnormal semen studies.

4. In eighteen cases, a definite etiologic factor could be found.

539 N. Grand Ave.

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SEE DIRE FUTURE FOR BRITISH MEDICINE UNLESS GOVERNMENT CHANGES POLICIES

Abuses of the British National Health Service Act "are evident everywhere and must lead to more and more regulations, tighter enforcement, greater penalties for violation, further limitations on freedom and further deterioration of the quality of medicine."

This pessimistic view of the future of medicine in England, "unless the government radically changes its basic attitude toward medicine," is expressed in a report made by a group of American physicians sent to Great Britain by the American Medical Association.

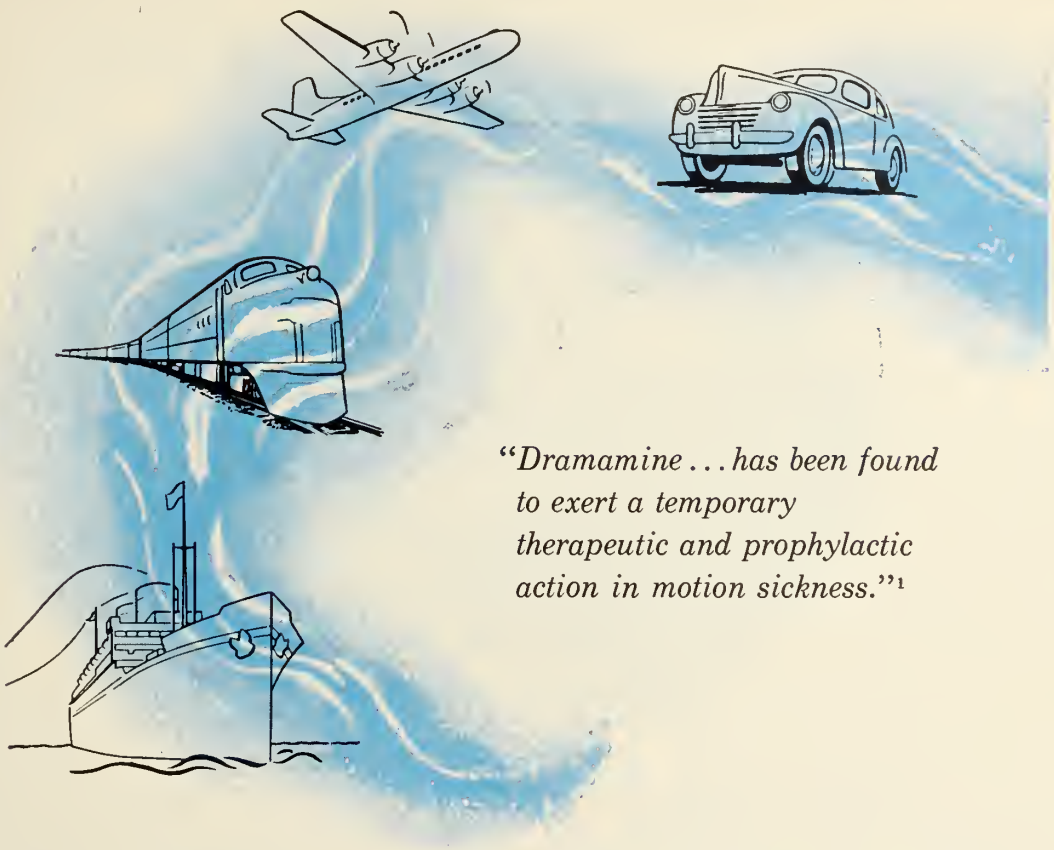
Members of the committee are Dr. Walter B. Martin, Norfolk, Va., member of the A.M.A. Board of Trustees and a specialist in internal medicine; Dr. Grover C. Penberthy, Detroit, a surgeon; Dr. Heyworth N. Sanford, Chicago, a pediatrician; Dr. Ulrich R. Bryner of Salt Lake City, a general practitioner, and Dr. Carl M. Peterson, Chicago, secretary of the A.M.A.'s Council on Industrial Health.

Their report, appearing in the August 19 *Journal of the American Medical Association*, says that deterioration in the quality of medical care and further aggravation of an existing maldistribution of doctors also have been results of the Act.

The report says that it is in the treatment of childhood illnesses that the National Health Act has caused the greatest changes, pointing out:

"The outpatient departments to which ambulatory children must be referred are greatly overcrowded. The waiting time for a tonsillectomy varies from eighteen months to two years in all hospitals visited.

"One of the most disturbing effects is the breakdown or deterioration of the prophylactic dental treatment of the school child, owing to the serious loss of dental surgeons staffs who have been transferred to the National Health Service. The introduction of the general dental service has indirectly caused irreparable damage to the teeth of hundreds of thousands of school children and may bring about, in the near future, the total collapse of all the priority dental services."



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1. Council on Pharmacy & Chemistry: New and Non-official Remedies, 1950, Philadelphia, J. B. Lippincott Co., 1950, p. 460.

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Postgraduate Review

MODERN ADVANCES IN ANESTHESIOLOGY

SEYMOUR BROWN, M.D.
ST. LOUIS

In attempting to evaluate the scope of recent advances in anesthesiology, one is impressed with the acute awareness of the modern physician concerning the value of controlled research in the clinical and basic science aspects of medicine. Daily, reports appear in the literature showing definite contributions to knowledge and understanding of the physiologic and pharmacologic changes occurring under the influence of disease, surgical trauma and various therapeutic and analgesic drugs. It is the cognizance and application of these advances in physiology and pharmacology, and in the technic for proper treatment before, during and after operation by the anesthesiologist and surgeon, that have made possible the great strides of increasingly extensive surgical procedures.

NEW AGENTS

Constant research is being carried on in an effort to find anesthetic and analgesic substances with a low index of toxicity but high potency, which also will satisfy other requirements of quick elimination and pleasant administration.

Krantz[1] and his associates have been active in the attempt to synthesize ethers and gases which will retain the beneficial qualities of present known compounds without the deleterious effects. In this regard a whole series of substituted ethers and cyclic gases is being investigated. Fisher[2] did some clinical trials with n-propylmethyl ether and found it to be approximately one and one half times the potency of ethyl ether. However, it was noted that the margin of safety was less. Krantz[3] and coworkers gave a favorable report on cyclobutane but noted that its cardiac sensitizing effect was at least equal to, if not greater than, cyclopropane. Virtue[4] observed in clinical trials with cyclopentane and cyclohexane that both had a low safety margin, caused definite excitement and other central nervous system effects.

Although morphine sulfate remains the most widely used of the analgesics for severe pain, its well recognized toxic side effects have continued to act as an impetus in the search for a more efficacious drug. Methadone is the recognized name of a synthetic drug available since World War II and previously termed also as amidone or dolophine. Kirchof and David[5] believed that methadone produced better analgesia with decreased intensity of undesirable side effects in the patients tested. However, respiratory depression in equal analgesic doses was not uncommon. Prescott and Ransom,[6] however, found that in obstetric work there was a high incidence of fetal respiratory depression. In a recent well controlled and exhaustive analysis, Denton and Beecher[7] were not convinced that the various active isomers of methadone produced less side action liabilities than morphine, when used in equivalent analgesic doses.

Hexylcaine hydrochloride and xylocaine* are new substances now undergoing extensive clinical investigation for use in regional anesthesia. Anderson[8] reported favorably on the former drug in 800 cases in local infiltration, nerve blocks and subarachnoid blocks. It is estimated to have approximately three times the potency of procaine hydrochloride with only slightly greater toxicity. Xylocaine, according to Gordh,[9] has a similar potency and toxicity in comparison with procaine hydrochloride. It has the quality of permeating mucous membrane, thus making it useful as a topical anesthetic; and it seems to have greater penetrating power as far as nerve blocks are concerned.* Further investigation will have to be completed before final conclusions can be reached.

In the tremendous wave of popularity of intravenous procaine hydrochloride as an analgesic, anesthetic, cardiac depressant and sympatholytic substance, Rovenstine and coworkers have continued to work for a better substance. Research with the hydrolyzed products para aminobenzoic acid and diethylaminoethanol did not prove fruitful. However, at a recent meeting on anesthesia Mark[10] gave a preliminary report on procaine amide,** a substituted procaine that has more potent effects as a cardiac ventricular depressant, but is less toxic. It also may be given orally. No doubt more complete results will be published soon.

Since the first publication of the use of the purified extract of curare in anesthesia by Griffith and Johnson,[11] the literature has been flooded with papers reporting its increased application in the fields of anesthesiology. The search to find the perfect muscle relaxant is, fortunately, continuing, and already synthetic substances that have a greater safety margin are under investigation.

Within three years after the introduction of the purified extract the further isolation of the highly active salt d-tubocurarine chloride made possible the administration of a more highly standardized drug, and one which did not precipitate in combination with a frequently used intravenous barbiturate.

Myanesin, a synthetic relaxant and an ortho toly ether of glycol, was introduced in England in 1946. It was found to be less potent than curare products[12] and, in addition, caused hemolysis in the

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* Since this article was written, this drug has been placed on the market and accepted by the Council on Pharmacy and Chemistry of the American Medical Association under the name of "Lidocaine." Astra Pharmaceutical Products Co.
*Personal communication. F. F. Foldes.
** This drug is now available under the name "Prontestyl." E. R. Squibb & Co.

blood stream with resultant kidney damage as well as direct venous thrombosis through irritation of the endothelium.[13] However, it was noted that it was not destroyed in the alimentary tract. A closely related product is now finding limited use in this country in a more dilute solution taken orally for spastic conditions, such as Parkinsonism, cerebral diplegia and osteoarthritis. No intravascular hemolysis or kidney damage has been noted with this substance.

Within the last year two synthetic products, methylated ammonium derivatives of decane, have been undergoing extensive investigation. Both decamethonium bromide[14] and decamethonium iodide have the qualities of potent muscle relaxation with less tendency for hypotension, bronchospasm and respiratory depression. However, neither of these agents is antagonized by the anticholinesterases, such as prostigmine. Thus the only antidote is efficient artificial respiration, easily performed with proper endotracheal intubation.

The muscle relaxants are acquiring an increasingly important place as adjuvants in the field of anesthesiology. They afford great aid in allowing the patient to be kept in a much lighter plane of anesthesia without sacrificing adequate muscular relaxation. In thoracic surgery respiration is more easily controlled and the combination with nonexplosive gases and intravenous barbiturates affords working conditions in which a coagulating machine may be used without danger. The curariform drugs are used in electric shock therapy to soften convulsions, in oil media for spastic conditions and in bronchoscopy to facilitate endotracheal intubation. The excessive quantity required during the latter procedure causes respiratory depression and has made its use controversial. The muscle relaxants are employed with great caution in treating the convulsions of tetanus because of the small margin of safety between control of convulsions and respiratory paralysis.[15] Newer synthetic drugs given orally in combination with barbiturates are proving more favorable.[16] One should remember that these drugs in therapeutic dosage have no analgesic quality, and that the beneficial effects may easily prove deleterious if excessive amounts are used to provide muscle relaxation without adequate anesthesia.

RESEARCH AND EXPERIMENTAL DIAGNOSTIC AIDS

Workers are striving to effect a means whereby the physiologic condition of a patient as regards his status of oxygenation, cardiovascular function and respiratory exchange may be immediately indicated to the anesthesiologist at any given time during the conduct of the surgical operation. The necessity for this knowledge is becoming increasingly more important as the scope of surgical technic expands in the cardiovascular and pulmonary realms. Some of the devices described will surely come to occupy a vital place in the armamentarium of the anesthesiologist of the future.

The direct reading electrocardiogram was, of course, developed in the field of cardiology. However, it is finding extensive use as a means of recognizing immediately cardiac irregularities occurring during anesthesia, thus facilitating the treatment of the more benign forms before a serious catastrophe occurs. Burstein[17] used the instantaneous recording electrocardiograph to detect and diagnose cardiac irregularities during anesthesia that were clinically not discernible. This is even more important when it is realized that a surprisingly high incidence of arrhythmias occur during surgical anesthesia with all the commonly used general anesthetic agents.

With the perfection of the oximeter by Millikan[18] in 1942, there has been a means of simple, direct and continuous measurement and recording of the blood oxygen saturation. The tremendous value of such minute-to-minute information is obvious to anyone interested in the effects of the variations of cardiovascular, respiratory and anesthetic drug depression upon the human physiologic economy. However, the accuracy of the oximeter is not infallible as it is influenced by such factors as changes in fluid volume, circulation speed and wetness of the ear to which it is attached. Nevertheless, it is finding increasing application in conjunction with other methods in research and clinical work.[19,20]

In an attempt to procure more accurate readings of the systolic and diastolic levels of blood pressure, and more accurate indications as to the part of the circulation primarily involved when a change in blood pressure occurs, Eather[21] and coworkers used a plastic catheter inserted into the brachial artery. The catheter is inserted through a No. 22 gauge needle which is then removed. The catheter is then connected to a capacitance monometer with a record on an ink writer. Records have shown the practical value of this method in differentiating between central and peripheral failure as a cause of hypotension, in diagnosing certain cardiac arrhythmias in combination with the direct electrocardiagram and in observing the effects of normal and abnormal types of respiration upon the circulation.

When the effective circulating blood volume of the body is reduced, there is a measurable decrease in the blood pressure that often is reflected more on the venous than on the arterial side. Anderson and Lundy,[22] with direct recording of the venous pressure, noted that changes in the venous pressure were more pronounced and were indicated much earlier under conditions of changing blood volume than those of the arterial pressure as recorded by the usual type of arm-cuff sphygmomanometer.

The Pauling[23] oxygen meter now provides a means of continuous measurement of oxygen tension in inhaled gas mixtures, and is being used more frequently in conjunction with the Millikan oximeter.

A method of more accurate evaluation of cardiovascular function has been devised recently by Foulger[24] and others in the electronic heart sound

meter. Preliminary studies have shown variations in cardiac output and, particularly, in total peripheral resistance in anesthesized patients. Its possible role as preoperative diagnostic aid will be determined as further experience is gained.

APPARATUS

Various new mechanical instruments have been used recently in the effort to facilitate the administration of anesthetics and to aid in related fields.

The "Hypo Spray" is a device reported by Hingson[25] for giving a painless intramuscular injection by high velocity jet stream without the use of a needle. The instrument does not require sterilization. However, it is not now suitable for amounts more than 1 cubic centimeter or for viscid solutions, and the possibility of intravascular injection of harmful substances is a real one. The original expense and its mechanical complexity also are factors that probably will limit its use.

New types of plastic cannulas for intermittent or continuous intravascular administration of fluid, medications and blood are now being used more frequently. A woven silk lacquered flexible cannula in which a small needle is incorporated will soon be replaced by various plastic tubings. Insertion of the lacquered cannula required cutting down on the vein with ligation of the distal portion and suturing of the skin. It is believed that the vinylite plastic tubing will be an improvement over the polyethylene plastic owing to its greater ease of sterilization by boiling. The plastic tubing may be inserted into a vein or subcutaneous tissue by threading through a large bore needle. A smaller bore needle is then inserted into the free end for use with intravenous adaptors.

CONDUCTION ANESTHESIA

With the introduction of continuous or fractional spinal anesthesia by Lemmon[26] in 1940, the first major stride was taken in reducing the toxicity of the effects of massive spinal anesthesia and in eliminating the uncertainty of the length of duration. This technic made possible the administration of much smaller doses intermittently as required during the length of an operation. However, the use of the indwelling malleable needle, which not infrequently is moved out of the subarachnoid space, and the requirement of a special mattress make the method rather cumbersome. Thus Tuohy[27] in 1944 reported on the technic of continuous spinal anesthesia using a No. 4 ureteral catheter introduced through a needle in the lumbar area and then withdrawing the needle. This eliminated both the possibility of losing the connection between subarachnoid space and reservoir of anesthetic fluid and the necessity for any special operating table mattress. In 1947 Saklad,[28] varying the technic of Tuohy and utilizing the knowledge of physiologic effects of dilute concentrations of anesthetic drugs in limited areas within the subarachnoid space, perfected the technic of fractional segmental spinal anesthesia. The use of the more dilute solution, deposited within a limited area in smaller fractional doses, decreases the toxicity. There is less likelihood of neurologic sequelae, less hazard of respiratory paralysis, better maintenance of normal blood pressure, less postoperative urinary disturbance and better maintenance of lower extremity muscle tone with its decreased incidence of phlebothrombosis. I have used this method, with the variation of omitting the ureteral stilet and using a No. 4 ureteral catheter, in hundreds of cases with great satisfaction as regards the surgical operating conditions, the general operative and postoperative course and the overall safety of the patient.

Sarnoff and Arrowood[29] in 1946, utilizing the work of Heinbecker and coworkers[30] on nerve conduction in relation to size and myelination, employed different concentrations of solutions, such as 0.2 per cent procaine hydrochloride, intrathecally. They showed that it is possible to block selectively fibers carrying sudomotor and vasomotor impulses and sensibility to pinprick, and at the same time leave sensations of touch, deep pressure, vibration, position and the more resistant motor impulses, intact. This finding has definite value in the diagnostic differentiation of peripheral vascular disorders and other conditions of autonomic imbalance.

Following along the same basic idea of minimal disturbance of physiologic function with optimum operating conditions, Hingson and Southworth[31] in 1944, Cleland[32] in 1949, and Frumin and Apgar[33] in 1949, attempted to procure segmental regional anesthesia by epidural block. Hingson and Southworth utilized a catheter threaded through a needle at the appropriate level. Cleland advanced the catheter to the desired level within the epidural space from the lumbar area. Frumin and Apgar introduced the ureteral catheter through the caudal canal as reported by Adams, Lundy and Seldon,[34] but then advanced it to the appropriate level for segmental block. It is believed that the elimination of exposure of the uncovered spinal cord and its roots to anesthetic agents and foreign bodies will reduce the incidence of neurologic complications. Since the dura is not punctured in properly conducted anesthesias, the incidence of headaches should be reduced to a minimum. However, the disadvantages of the method should not be overlooked. Caudal puncture may be difficult, or impossible in some instances, due to anatomic variations, and an inadvertent puncture of the dura is not too rare. The catheter may be caught on a nerve root producing trauma, with impediment, kinking or stoppage of its progress; or the needle may shear off the catheter in the caudal canal. The occurrence of unilateral anesthesia or hypesthesia is not fully explained.

The work of Hingson and Edwards[35] on continuous caudal analgesia in obstetrics in 1942 received great publicity and served to emphasize the tremendous advantages of regional anesthesia over inhalational anesthesia in the parturient woman, both from the standpoint of avoiding deleterious

hypoxic effects on the fetus and of eliminating possible complications in the mother. Unfortunately, its presentation to the general public as the perfect analgesic technic for obstetrics was made before proper evaluation of its possible complications and disadvantages could be ascertained. After several years of experience and modification of the technic using the indwelling ureteral catheter instead of the malleable needle, the status of this method is assuming its rightful place. Adriani and Roman-Vega[36] coined the term "saddle block" to describe a technic that provides anesthesia limited to the "saddle area." In 1946 it was adapted also to obstetric analgesia by Parmley and Adriani.[37] The use of an hyperbaric subarachnoid anesthetic in obstetrics was reported in English literature earlier by Resnick[38] and by Burton.[39] However, the latter authors used much larger amounts of anesthetic drugs, thereby causing more extensive and profound anesthesia with resultant greater danger of complications. An excellent review comparing the results of the two types of conduction anesthesia in obstetrics has been published recently by Masters and Ross.[40] The technic of saddle block has now been applied to other perineal surgical procedures.

Almost since the inception of the technic of subarachnoid anesthesia, different investigators, Bier (1904), Richards (1911), Burch and Harrison (1931), Jianu and Moisescu (1933),[41] and others have employed vasoconstrictors intermittently in combination with various anesthetic drugs in an attempt to prolong the anesthetic and muscular relaxant effect. Previously, there was disagreement as to the beneficial effects of the vasoconstrictors, but the method has been revived with much enthusiasm the last few years. Bray and associates[41] were able to perform a controlled study in man using nupercaine and pontocaine as anesthetic agents, with and without epinephrine, neosynephrine, ephedrine and oenethyl as vasoconstrictors. The results indicated conclusively that epinephrine was the most efficacious vasoconstrictor for the desired effects. No deleterious systemic or neurologic changes were noted. Prickett[42] and others reported similar results in a controlled study with procaine.

Procaine hydrochloride was first synthesized by Einhorn in 1905. Despite the report by Bier[43] in 1909 on its intravenous use with a tourniquet to produce anesthesia of the extremities, its administrations until recently were limited in this country to the subcutaneous, intrathecal and epidural routes. It was believed that the toxic effects were too great to permit intravascular administration, even in minute quantities. However, Mautz[44] in 1936 demonstrated a reduction in the irritability of the myocardium and conduction system of the heart by the topical application or intravenous administration of procaine hydrochloride. In 1937 Lewy[45] reported the intravenous use of procaine in the therapy of tinnitus aurium. In 1940 Burstein[46] gave procaine intravenously during clinical anesthesia for the treatment of acute cardiac arrhythmias with marked success, emphasizing its possible use in cardiac and pulmonary surgery. Lundy's[47] report of the treatment of pruritus of jaundice with 0.1 per cent procaine intravenously served to increase the interest in the drug. During World War II Gordon[48] reported his experiences with continuous intravenous procaine to obtain analgesia for burn patients during transportation. Webster[49] in 1943 used procaine for relief of postoperative pain. Allen[50] first reported its use in a 1 per cent concentration as an anesthetic in obstetrics in 1945. In 1948 Brodie, Lief and Poet[51] reported on the presence of an enzyme in human plasma which catalyzes the hydrolysis of the drug to para aminobenzoic acid and diethylaminoethanol. They concluded that the liver is not an important site for the detoxification of procaine in the human being.

With the experiences of the previous investigators as a background, intravenous procaine is being used more extensively in general anesthesia.[52,53] Its effects in depression of cough reflex, prophylaxis of cardiac arrhythmias and depression of salivation and respiratory secretions during intrathoracic operations on the heart and lungs have been gratifying. Procaine provides a controllable basal analgesia in combination with other anesthetic drugs and also a postoperative analgesia, lasting several hours, when it is in the intravenous fluids. The most severe hazard during general anesthesia using 0.1 or 0.2 per cent concentrations of procaine is its tendency toward circulatory depression during quick administration.

INTRATHORACIC SURGERY

The increasing scope of intrathoracic surgery is one of the prime examples of collaboration in the anesthesiologic and surgical advances. Harmel and Lamont[54] emphasized the basic problems involved in congenital cardiac anomalies. The constant hypoxia of insufficient pulmonary circulation, the reduced cardiac reserve and the increased viscosity and coagulability of the blood secondary to compensatory polycythemia have presented difficulties that require the utmost careful observations during anesthesia and the assiduous application of basic physiologic knowledge. McQuiston's[55] wide experience in pediatric anesthesia during cardiac surgery led him to investigate the beneficial effects of lowered body temperature in reducing the cellular metabolic rate. The advantage of this decreased metabolism in the presence of continued hypoxia due is impaired cardiac and pulmonary function is obvious. Gross,[56] in collaboration with Smith, recently gave a comprehensive review of the problems of anesthesia during the surgical treatment of congenital cardiovascular disease and the attempted methods of solution.

DIAGNOSIS AND THERAPEUSIS

The role of the anesthesiologist as a consultant in the diagnosis and therapy of peripheral vascular diseases is becoming increasingly more important. His knowledge and experience in the pharmacologic blocking of various somatic and autonomic nerves

is being utilized more extensively by the surgeon and the internist in their approach to the proper treatment of these disorders.

Paravertebral sympathetic blocks are of great value in the differentiation of arteriosclerotic and vasospastic diseases and may indicate the future therapy. Diagnostic temporary epidural sympathetic blocks, using a modification of Hingson (1942) technic so as to correlate the extent of somatic anesthesia with blood pressure fall, have proved to be one of the most reliable tests for the effectiveness of surgical thoracolumbar sympathectomy. The use of paravertebral lumbar block for thrombophlebitis in the lower extremities was described by Leriche and Kunlin[57] in 1934, and reemphasized by Ochsner and DeBakey[58] in 1940. It has since been used in other vasopastic and acute ischemic conditions such as arterial embolus and thrombosis, in the attempt to establish collateral circulation through vasodilatation and relief of reflex vasospasm due to pain. Modifications of the technic, employing a ureteral catheter in the epidural space through the caudal canal or in the second paravertebral lumbar space, for continuous block, are described by Ruben and Kamsler[59] and by Thomason and Moretz,[60] respectively. Eclamptic crises have been treated with remarkable success by the former technic.[61] Continuous subarachnoid block with the catheter technic for the relief of lower extremity vasospasm was elucidated by Smith and Rees[62] in 1948. Paravertebral sympathetic blocks have been used with beneficial results in the treatment of herpes zoster; and anesthetization of the celiac ganglia has provided temporary relief in almost intractable pain of carcinoma of the pancreas. This latter fact has been utilized by Orr and Warren[63] to provide a more lengthy analgesia in acute pancreatitis through a catheter in the epidural space.

The treatment of cerebral apoplexy by stellate ganglion block is receiving more attention in recent years, and thus the possible uses of this block should be noted. Leriche and Fontaine[64] published an account of the anterior approach technic with indications and results in 1934. With the more complete understanding of the physiologic functions of these ganglia more indications for blocking have been apparent. Blocking of the middle cervical and stellate ganglia produces a definite vasodilatory effect in the corresponding half of the head, face and neck. The effect extends to the heart and lungs, and is intense in the ipsolateral arm.[65] Volpitto and Risteen[66] observed by direct inspection of the cortex of two patients immediately after stellate ganglion block an increase in the caliber of the pial vessels. In cerebral thrombosis an immediate improvement, or an improvement within a few hours, was seen with partial to complete recovery. Beneficial effects have been derived from its use in upper extremity arterial embolism,[67] Sudek's atrophy, erthromelalgia, post-traumatic edema, thrombophlebitis,[68] Raynaud's disease,[69] causalgia and phantom limb. Asthmatic crises have been relieved by stellate ganglion block,[70] and good therapeutic results have been obtained in acute edema of the lung[71] and in relief of pain in pulmonary embolism.[72] In some cases of post-traumatic paralysis of the radial and ulnar nerves without anatomic lesions, beneficial effects have been noted by de Sousa Periera.[73] The method evolved by de Sousa Periera with blockage of both middle cervical and stellate ganglia seems to be one of the most simple, safe and extensive.[74]

The treatment of pain and various pathologic conditions with intravenous procaine has gained impetus the last few years, but it is certainly still in the experimental stage as regards its possibilities. State and Wangansteen[75] reported success in the treatment of delayed serum sickness. Its favorable use in thrombophlebitis with relief of pain and resolution of edema and inflammation, treatment and prophylaxis of urticaria of blood transfusion reactions and relief of muscle spasm in traumatic and post-traumatic conditions was noted by Barbour and Tovell.[76] Graubard and Peterson[77] reported its successful analgesic use in traumatic conditions such as fractures, postreduction arthralgia, sprains, traumatic arthritis, myofascitis, postoperative pain, reflex sympathetic dystrophy, anesthesia for laceration and contusions; inflammatory conditions such as rheumatoid arthritis, osteoarthritis, peripheral vascular diseases and occlusion. Its efficacy in the last category was not corroborated. Some relief of spasticity following anterior poliomyelitis and of congenital spasticity was noted. A quick perusal of the foregoing uses serves to confirm the belief that the final evaluation of the effectiveness of intravenous procaine and its therapeutic scope will require a great deal more time. However, in view of its extensive applications it is well to emphasize Richards'[78] suggestion of the importance of vitamin C therapy to increase resistance to toxic side effects, especially in patients in a poor nutritional state.

Ethyl alcohol has been employed in recent years in 5 and 7.5 per cent concentrations intravenously in combination with electrolytes, glucose, vitamins or protein solutions as an analgesic for relief of postoperative pain. It is believed that the need for opiates is reduced, thus avoiding the possible side effects of respiratory depression. Also patients seem to experience less postoperative nausea, headache and distension, regardless of the type of anesthetic, and appear to have a better mental attitude. Its caloric value also must be considered in the effort to maintain nutrition. However, it should be remembered that too quick administration results in inebriation with its awkward effects.[79]

The institution of the postanesthetic room, or the recovery room, by Lundy[80] in 1942 marked another milestone of more efficient treatment of patients influenced by the anesthesiologists. Any patient who is in shock or unconscious, or who lacks voluntary control of the protective reflexes, is kept under the supervision of trained personnel. All emergency and therapeutic equipment is available

and periodic visits are made by the assigned anesthesiologist to evaluate the status of the patient.

PARENTERAL FLUID THERAPY

It is well recognized that one of the most important factors in the development of modern surgical and anesthesiologic procedures has been the better understanding of acid-base balance, fluid therapy and proper replacement of blood and blood fractions before, during and after operation. The realization of the foremost clinicians in this matter, and the consequent application of the knowledge of biochemical and physiologic changes in patients, resulting from pathologic, anesthetic and surgical influences, is one of the most stimulating impetuses of modern medicine. The literature is filled with careful studies on electrolyte balance in patients under various conditions. Maddock's[81] comprehensive review on fluids and electrolytes gives valuable information on changes in different pathologic conditions. Harbison[82] stresses the value of blood transfusions in toxic conditions, preoperative, operative and postoperative therapy. Seldon[83] elucidates the clinical and laboratory tests which may be done preoperatively to evaluate the patient's cardiovascular status, and the types of fluid therapy and treatment which may be given to prevent or to treat shock.

It has been routine for several years to start all major surgical procedures with a large bore needle with fluids running slowly intravenously, and to pump blood under pressure created by a sphygmomanometer bulb when a dire necessity arose. Pierce and coworkers[84] recently described a method of blood administration under pressure using a connection to a small oxygen tank. As with any pressure method the possibilities of cardiac overload or air embolism must be avoided. The advantages of the No. 15 gauge over the No. 18 gauge needle for rapid blood administration are well illustrated by Brew and Dill.[85]

The report by Hale[86] on controlled hypotension during brain and fenestration operations stimulated great interest. Blood was collected by an intra-arterial cannula in the radial artery into a special flask and was returned by the same route at the end of the operation. The advantages of decreased bleeding during operation were stressed as well as the greater efficacy of intra-arterial over the intravenous methods of blood transfusions in shock treatment, as enumerated by Page. This method is still in the experimental stage but offers great promise, if the dangers of cerebral hypoxia of hypotension are avoided.

SUMMARY

The development of modern technics and less toxic analgesic drugs makes it possible for the anesthesiologist, after proper evaluation of the patient by clinical and laboratory methods, to administer any anesthetic drug or combination of drugs by the technic and concentration that will least disturb the normal human economy under any surgical procedure. This also involves chemotherapy and proper replacement therapy with fluids, electrolytes, blood and blood fractions.

Another aspect of the field of anesthesiology is the participation of its members in clinical and laboratory research. Their necessary knowledge of pharmacology and physiology makes them an ideal link between research in basic sciences and clinical application of the fundamental principles involved.

It has been stated by many well informed anesthesiologists and surgeons that the recent advances in the magnitude of surgical procedures has been made possible only by the parallel progress in anesthesiology. Such progress can be continued only if the interest of medical men is stimulated in this field through basic exposure in medical schools and training in properly supervised hospital residency programs. The responsibility of the medical schools in maintaining recognized departments of anesthesiology with opportunities for research cannot be minimized. It is hoped that more medical schools will realize this fact.

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CLINICAL PATHOLOGIC CONFERENCE

St. Louis University School of Medicine

HISTORY

Chief Complaint.—"Trouble in breathing" of two months duration.

Present Illness (Informant, Mother).—In 1944 the patient was treated for three months with bed rest and sedation because of the diagnosis of rheumatic fever. Her complaints at that time were dyspnea, malaise and anorexia. No fever, joint pains or epistaxis were present. She was symptom free except for two or three bouts a year of malaise and dypsnea lasting from one to two days. About ten weeks prior to entry she had a severe sore throat of a few days duration for which she received sulfa tablets. About seven weeks prior to entry she had experienced fleeting joint pains for the first time; most of the joints of the body being involved. At that time she was treated with bed rest and a liquid medicine. There was apparently no swelling or redness of the joints but there were muscle pains of the calves and thighs. Dyspnea developed and gradually increased in severity. About two weeks before entry she developed fever and intermittent diaporesis. A few days prior to entry she developed anorexia and developed upper abdominal tenderness. She had orthopneia and a cough and blood tinged sputum. No chest pain, epistaxis or vomiting was noted. It was difficult to determine the type and amount of medication which she had received, but apparently no digitalis and only occasional doses of salicylates had been given.

Past History.—The past history was noncontributory.

Systemic Review.—There was history of frequent mild sore throats; no epistaxis. Apparently normal menarche occurred eight months prior to entry. The patient had developed a fever following the administration of sulfa drugs five years previously.

Physical Examination.—Temperature was 101.8 F.; pulse, 120; respirations, 60; blood pressure 95/58. The patient was a well developed, well nourished 12 year old female sitting up and in acute respiratory distress.

The skin showed marked pallor, but no patechiae or rash was present. A few small, firm nontender anterior and posterior cervical lymph glands were palpated. The nasopharynx was normal. The neck was supple; the trachea was in midline. The veins were distended and pulsations quite apparent. Accessory muscles of respiration were being used. Percussion note was dull in both bases of the lung posteriorly. Crepitant rales in both bases and increased harsh breath sounds over the left lung field were heard. No thrills or rubs palpated precardially, and the rhythm was regular. Apical and radial pulse were 120 per minute. The point of maximal impulse was 2 centimeters to the left of midclavicular line in fifth intercostal space. The heart tones were of poor quality and a rough continuous to-and-fro murmur was heard over the precardium, loudest at the apex and well transmitted to the axilla. An inconsistent precardial friction rub was heard over the base. The liver edge was 3 centimeters below the right midcostal margin and pulsated with each cardiac beat and was extremely tender. Mild cyanosis of the nail beds was present but no petechiae. One plus ankle edema was noticed.

On admission the red blood count was 3.2 million, with 7.8 grams of hemoglobin; 10,000 white blood cells, with two stabs, 67 segmented, 28 lymphocytes and 3 monocytes in the differential. The hematocrit was 27, the sedimentation rate 32, the nonprotein nitrogen 35 mg. per cent, and the CO_2 combining power 15.7 ml. eq. The Kahn was negative. The urinalysis showed a trace of albumin, trace of sugar, 3 plus acetone and numerous red and white blood cells on microscopic examination.

On the following day the urinalysis showed pH 4.0, 1.030 specific gravity, 3 plus albumin, negative sugar and acetone, and from 4 to 5 white blood cells and from 3 to 4 red blood cells on microscopic examination. The salicylate level was 18 mg. per cent, CO_2 combining power 9.2 ml. eq. The blood culture was negative.

X-ray (bedside examination) revealed the cardiac shadow to be enlarged to the right and to the left, the transverse diameter of the heart measuring about 13.2 centimeters while the transverse diameter of the thorax measured 23.0 centimeters. "There are small blotchy areas of infiltration throughout almost the entire right lung field and the lower half of the left lung field. There is no definite roentgen evidence of pleural effusion." (Figure 1).

The electrocardiograms on August 4, 1949, showed rhythm regular; rate 112 per minute; P-R interval, 0.16 second. P waves were upright in I, II, III; QRS complex upward in I, II, III; T waves upright.

On August 5, 1949, an electrocardiogram showed rhythm regular; rate 130 per minute; P-R interval, 0.20 second; P waves upright in I, II, III; high P in II. QRS complex was upward in I, II, III; T waves upright in I, II, III. In lead CFIV the initial deflection of the QRS complex was upward. T waves were upright.

The patient was placed on absolute bed rest, continuous oxygen by tent, salicylates, (100 grams per twenty-four hours) and sedation. On August 4, 1949, theocalcin was started and moderately fast

Published in *The Bulletin*, St. Louis University Hospital, 2:(March) 1950

digitalization. Two small whole blood transfusions were given. Because of the low carbon dioxide combining power, molar sodium lactate was given per os. Mercurial diuretics also were employed with poor results. Her course was progressively



Fig. 1

downhill; edema, dyspnea and poor quality to heart sounds becoming steadily more severe. She expired at 9:00 p.m., August 5, 1949.

DISCUSSION

Ralph A. Kinsella, M.D.: As is often the case with our abstracts, more than one diagnosis is suggested, and no diagnosis is ever stoutly defended. It is odd that since streptococcus is associated so frequently with rheumatic disease in the literature that it often happens that no culture or any studies connected with streptococcus are made on patients who are supposed to have rheumatic fever. Recently, I have been going through some records at St. Mary's Hospital in which a form of inflammatory rheumatism following streptococcal infections was present. No throat cultures were made on patients entering with sore throats. There would be a blood culture but not a throat culture. It is important that all means of investigation into the etiology of various diseases be emphasized so that these records can be used as evidence in our arguments and case studies.

Now here is a patient that lived only two days after entering the hospital and was 12 years old at time of death. At the age of 7 she became a patient. The history is not clear as regards her complaints at that time and although the diagnosis of rheumatic fever was made there are no listed complaints relating to the joints. A young person of this age usually can have only two kinds of heart disease, either rheumatic or congenital, with the rare exception of the disease, Lupus erythematosus. Five years after her first "rheumatic fever" the patient first showed evidence of inflammatory rheumatism, and this followed a sore throat and the administration of sulfa drugs. The question of streptococcal infection in acute rheumatic fever, glomerulonephritis, periarteritis nodosa or lupus is pretty well associated in popular thinking, largely through the common denominator of collagenous disturbance, with disturbance in the hyaluronic acid content. The factor of age certainly has been emphasized. There is an excellent article on streptococcal infections by Swift in Volume 1 of "Bacterial and Mycotic Infection" that stresses the relationship of age to the various kinds of expressions that follow streptococcal infection. It is probable that in the early years of life the individual responds to streptococcal infection in a way entirely different from the way he could respond in later years.

One of the active substances in the organism itself is hyaluronidase, and there is also hyaluronic acid in the capsule. The spread of the infection is thought by some to be associated with this substance, based on the evidence that India ink spreads under the skin rapidly if hyaluronidase is added. But there are other substances that are probably just as important as hyaluronidase; enzymes which the streptococcus develops. Enhancing virulence by animal passage or by passage through humans in an epidemic probably depends upon the active development of these enzymes in the presence of an increasing amount of materials presented to the streptococcus, such as hyaluronic acid and desoxyribonucleic acid, and it is conceivable that there are greater amounts in younger life than in adult life. That might have something to do with the tissue reaction which is characterized by an alteration of collagen. This one thing has been seized upon as showing that diseases of an allergic character are related to each other, such as rheumatic fever, lupus, periarteritis nodosa, rheumatoid arthritis and others. But as Klemperer has wisely pointed out it may be a mistake to overemphasize this single fact since x-ray burns also are associated with a matrix of collagenous material.

In this particular case there was no bacteriologic study. I do not think enough attention is paid to bacteriology in the study of disease. This patient was a young child who came into the hospital in a desperate state, unable to breathe, and presented a picture which is not easy to judge from the language of the report. The x-ray picture refers to

shadows, which, of course, might mean infarcts, rheumatic infiltration, congestion or fluid and it is impossible to make an etiologic deduction and, of course, etiologic deductions should not be in an x-ray report. She had a to-and-fro murmur over the precordium. The expression to-and-fro always refers either to precardial friction rub or to a murmur in one valve, like a systolic and a diastolic murmur in one valve. It could not possibly be used to mean a systolic murmur at the mitral valve and a diastolic murmur at the aortic valve. The expression is wrong if it is used to describe two murmurs. Mention also is made of an inconstant pericardial friction rub which moves the pathologic condition of this case pretty definitely into the pericardium. The presence of a pulsating liver which is described would make one think the tricuspid valve must be involved. There is hardly any other way for a liver to pulsate. This child had great distention of the veins of the neck in addition to a pulsating liver, so it would seem that the right heart must have been dilated. The patient had a severe secondary anemia; she had some degree of congestive failure, edema of the legs and enlargement of the liver. She had evidence of renal disease shown by the red blood cells in the urine and at times a 3 plus albumin. Now all of these things fairly well fit together. Pericarditis usually is accepted as one of the evidences of rheumatic fever, but it is not nearly as frequent

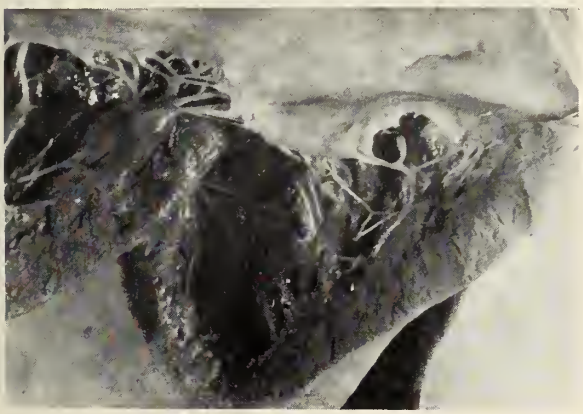


Fig. 2

an evidence of rheumatic fever as it is of non-rheumatic heart disease, such as is found in lupus. Glomerulonephritis can be a sequel; by that I do not mean an effect but a sequel of streptococcal infections. The statement is made that this patient has had many sore throats. That is a crude statement. We really do not know from that statement whether the patient had a sore throat or not. It is important, I think, to stress the importance of doing a little investigative work when patients, particularly young patients, have what is loosely referred to as a sore throat and to get cultures of these areas.

I believe that the most likely diagnosis from this legend would be rheumatic fever. It is true that quite young children may have a minimum of joint display and a maximum of cardiac damage. Certainly the nose and throat specialists in the earlier days, not so much since penicillin, saw many cases of otitis with severe streptococcal infection of the peritonsilar area and the eustacheon tubes followed by red tender swelling of many joints of the body without cardiac involvement.



Fig. 3

There are many such cases so that it is impossible to say whether rheumatic fever is always one disease, or whether there are different diseases which have a common expression of acutely inflammed tender joints but are really etiologically different.

So here is a patient who originally had no joint involvement and five years later entered the hospital with dyspnea and in two days was dead from involvement of the heart and kidneys. In this interim there had been a fleeting attack of joint pains. Now I think that rheumatic fever may involve the kidneys, and Aschoff bodies have been found in the renal arteries. Ordinarily, the affection of the kidneys in rheumatic fever is not of the exudative type that would yield a lot of red and white blood cells in the urine. The renal disease in this case seems to be a little departure from the ordinary rheumatic picture, as does the striking pericardial involvement. This might mean that some infection had come into the picture, although this child was treated with sulfonamides and had a sterile blood culture; nevertheless, these coarse murmurs may represent bacterial vegetations on injuries which were either congenital lesions or from rheumatic fever. I do not think that there is any way of being sure about the first illness because the information is so indefinite.

Any questions or criticisms of the diagnosis here? Any other diagnosis?

W. H. YOUNGE, M.D.: How do you explain the acetone in the urine?

Dr. Kinsella: The acetone in the urine? I do not know, unless the child was without food.

Dr. Younge: Did the salicylate acid have any effect on the kidneys?

Dr. Kinsella: Salicylic acid may give false acetone test if it is not carefully tested, but I do not think that salicylic acid, even in fatal doses, would be chiefly of renal effect.

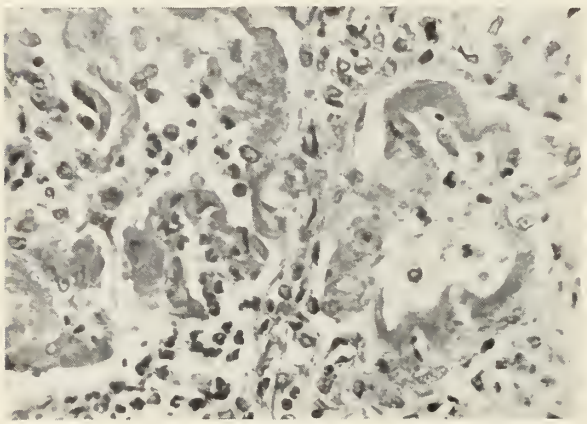


Fig. 4

William A. Knight, M.D.: Are repeated doses of sulfonamide drugs necessary to set up a chain of events for hypersensitivity, or is one dose enough?

Dr. Kinsella: I do not know. We have had several cases of what seemed to be sulfonamide rheumatism, and one of them came to an autopsy here that had periarteritis nodosa. The discussion then was that the man really had it twice but we could never find out satisfactorily from the history.

Dr. Sante will you show the x-ray film on this patient, please?

L. R. Sante, M.D.: The x-ray (fig. 1) shows an enlargement of the cardiac shadow, but the shape of this heart shadow is not of the pericardial friction rub, but I do not believe that this shadow is indicative of a pericardial exudate. The lung field on the right side is almost completely obliberated by a blotchy irregular appearing exudate that looks like edema of the lungs. On the left side there are little rounded areas that show a greater density through this hemogenous picture that could be part of an edema or could be some associated condition in the lung. Small rounded deposits are sometimes seen after repeated bouts of decompensation where iron pigment remains in the lung—hemosiderosis—but this is not characteristic by any means. It looks like edema from cardiac failure.

Dr. Kinsella: It does not look like effusion?

Dr. Sante: No, but one other thing. I would like to know if anyone has seen a proven case of rheumatic deposits in the lungs because recently there has been a great stress on rheumatic pneumonia and I have only seen one case in which there was a diffuse congestion-like picture which looked almost like an infarct. But I have not seen anything as extensive as is shown in this patient which could be considered rheumatic deposits.

Dr. Kinsella: I think that they are usually subpleural infiltrations.

Dr. Sante: You mean it would not show readily?

Dr. Kinsella: It would not show a solid distribution throughout the entire lung. I do think that the early literature on rheumatic fever ought to be put aside because some cases of lupus have been included, especially the bread and butter exudate on the pericardium, and the button hole mitral stenosis.

CLINICAL DIAGNOSES

Rheumatic fever.

Rheumatic heart disease, active, with effusion, valvular incompetency, and passive congestion.

DR. KINSELLA'S DIAGNOSES

Rheumatic heart disease, active.

Rheumatic fever.

PATHOLOGIC DIAGNOSES

Rheumatic pneumonia, bilateral, diffuse.

Acute rheumatic fever.

Acute rheumatic heart disease, pancarditis, with involvement of the mitral and aortic valves.

Congestive heart disease.

Hyalin thrombae in the glomerular tuffs.

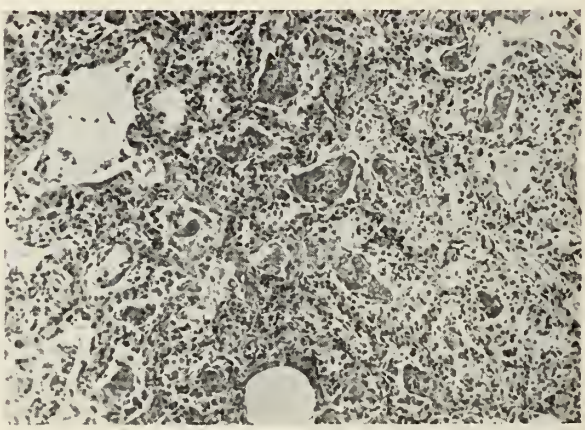


Fig. 5

Vincent Moragues, M.D.: At autopsy the main points were as follows: External examination of the body revealed a pallid young girl with engorgement of the cervical veins and some clubbing of the fingers. No edema was present. The right pleural cavity contained about 100 cc of thin, yellowish fluid. The pericardium had about 20 cc. of similar fluid. The heart weighed 400 grams and revealed a small amount of fibrinous exudate over the left atrium. The right ventricle was slightly dilated, but the tricuspid and pulmonary valves were well preserved. The mitral valve showed fibrosis of the cusps, with thickening of their free borders and the chordae tendinae.

There were rows of small, pin-point vegetations along the edge of the cusps. The commissures of the mitral valve were obliterated, and the posterior cusp presented a U-shaped deformity (fig. 2). The left ventricle was slightly dilated and soft in consistency. The cusps of the aortic valve also showed fibrosis, distortion and pin-point vegetations.

Each lung weighed more than 500 grams and presented a rubbery, firm consistency. The color was pink, somewhat darker at the bases (fig. 3). The liver was large (1,350 grams) and revealed much congestion. The rest of the gross examination was irrelevant.

Microscopic sections of the heart revealed interstitial edema and inflammatory cell infiltration in the perivascular areas. These cells were arranged into Aschoff bodies, with the typically large and basophilic cells in the center.

The lungs presented a marked inflammatory picture, predominantly interstital. Most of the cells were mononuclear and many heart failure cells were present. The alveolar walls showed some fibrinoid necrosis and were lined in places by a hyaline membrane (fig. 4). Many rounded, granulomatous lesions were seen in the alveolar walls, bulging into the alveoli. Some of these lesions were actually pedunculated and were lined by a single layer of cells in continuity with the alveolar lining (figs. 5 and 6). The center of these lesions was eosinophilic and contained some fibroblasts

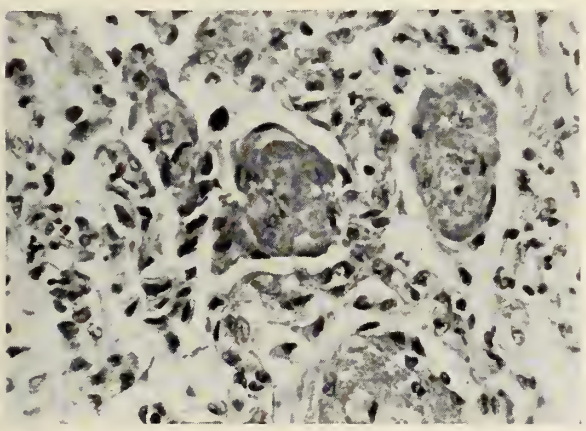


Fig. 6

and basophilic cells. Masson called these lesions "bourgeous conjunctives" (connective tissue buds) and claimed that they were specific of rheumatic pneumonia.

The liver revealed central congestion and necrosis. The kidneys showed many small hyaline thrombi in the glomerular capillaries.

According to Newbuerger, et al. (Arch. Path. 1944) the clinical picture in rheumatic pneumonia is rather indefinite but reveals usually fever, cough, blood tinged sputum and leukocytosis. Dyspnea may be severe, whereas cyanosis and chest pain are usually less noticable than in other types of pneumonia. The pathologic findings in this case were identical with those described by the authors quoted.

DR. KINSELLA: Do you think that there is evidence of more than rheumatic fever here, that is, rheumatic fever plus?

DR. MORAGUES: Yes, this type of pulmonary involvement (fibrinoid necrosis, hyaline membranes, granulomatous lesions) is only found in a small percentage of cases of rheumatic fever. In Newbuergers' series there were eight instances of rheumatic pneumonia among sixty-three consecutive cases of rheumatic fever.

DR. KINSELLA: Will you mention some of the other conditions in which there is a hyaline membrane in the alveolar wall?

DR. MORAGUES: This hyaline membrane is found in some types of viral pneumonitis (influenza) and in some other conditions supposedly of allergic nature (lupus, periateritis, glomerulonephritis). It is believed that the membrane results from the inspissation of the fibrinous exudate within the alveoli or possibly from extrusion of the fibrinoid necrotic material in the alveolar wall.

ATOMIC KNOWLEDGE BEING USED TO DETERMINE HYPERTHYROIDISM

Atomic knowledge is being used to determine excess activity of the thyroid gland, two Los Angeles physicians report in the June 10 *Journal of the American Medical Association.*

Radioiodine (also known as I^{131}), produced by the Atomic Energy Commission in Oak Ridge, Tenn., is the medium which is being used successfully to diagnose hyperthyroidism, according to Dr. Henry L. Jaffe and Dr. Richard E. Ottoman of the Cedars of Lebanon Hospital. Goiters are one of the results of the disorder.

In a report covering 152 cases of suspected hyperthyroidism, they said radioiodine proved more reliable than the basal metabolism or blood iodine level tests.

The radioactive radioiodine in distilled water is taken orally. Twenty-four hours later, the uptake in the thyroid gland is measured with a Geiger counter which records radioactivity. A count is taken at 10 cm. above the thyroid gland and another over the thigh, just above the knee. The difference, representing the count coming from the thyroid gland itself, is compared with the count from a standard dose in a bottle, measured at a like distance.

"The 100 microcurie tracer dose of I^{131} represents a small amount of radiation delivered to the body," the Los Angeles doctors explain. "That portion not taken up by the thyroid is almost completely excreted by the kidneys. No damage to these organs has yet been reported or noted in our patients.

"In the average person less than 30 per cent of the tracer dose is retained by the thyroid. We considered an uptake of over 35 per cent to be in the definitely toxic range. Usually, the greater the percentage of uptake the more toxic was the patient clinically, except for patients in the older age group with a marked clinical toxicity picture."

The radioiodine and the two other tests were given to all of the 152 patients within a few days after their referral to the hospital's radiation therapy department.

"Premarin"—a naturally occurring conjugated estrogen which has long been a choice of physicians treating the climacteric—is earning further clinical acclaim in the treatment of functional uterine bleeding.

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*Fry, C. O.: J. Am. M. Women's A. 4:51 (Feb.) 1949

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Case Report

LIPOID PNEUMONIA OF UPPER LOBE OF RIGHT LUNG

R. O. MUETHER, M.D.
ST. LOUIS

LAUGHLEN[1] FIRST directed attention to the possibility that certain hitherto unexplained cases of pneumonia followed the aspiration of oily substances used to treat the upper respiratory or gastrointestinal tracts. Other authors, notably Pinkerton,[2] established the etiology, pathology and diagnosis of the disease now generally called "lipoid pneumonia." For a thorough review and understanding of this process, the reader is referred to the papers by Pinkerton and Bishop.[3]

The case presented is fairly typical of the clinical picture of lipoid pneumonia and is perhaps of special interest because only the right upper lobe of the lung was involved. Exclusive involvement of the right upper lobe is relatively rare. I could



Fig. 1.

find in the literature only one other case which was reported by Freiman.[4]

CASE REPORT

This 50 year old, 157 pound white male entered the hospital on July 15, 1948, with cough and a fever of from 99 to 101 F. The patient had noticed the low-grade fever in the afternoons and after meals. He had occasional night sweats. There was a mild cough which produced small amounts of sputum containing gray specks but no blood. After three or four days of "sulfa" therapy, the fever disappeared and the patient stopped the medication. Five to seven days later the fever reappeared and had persisted since that time. The patient said he had "smoker's hack," and had been a chronic cougher for about thirty years. On careful and repeated questioning it was finally learned that he had instilled oily nose drops for "sinus trouble" into his nose every night



Fig. 2.

for the last year. The drops were introduced into the nose while lying on the right side at bedtime and he apparently went to sleep while in this position.

Past History.—He had had measles, mumps, pertussis and scarlet fever as a child; tonsillitis at 25 years of age; sinusitis of from ten to fifteen years duration; asthmatic attack three years ago, tonsillectomy at age 25, hemorrhoidectomy at age 45, accidental fracture of ribs and pelvis eighteen years ago, other ribs broken six and fours years ago with no sequelae.

Family History.—There were five siblings, one dead due to tuberculosis, one an arrested tuberculosis case, another had mild tuberculosis; remaining siblings alive and well.

Physical Examination.—The patient was a well-nourished, well-developed, white male, rational and cooperative, in no distress. Temperature was 99.2 F., pulse 88, respirations 20, blood pressure 130/80. Physical findings were essentially normal. The lungs were clear on percussion. There were some expiratory wheezing but no rales over the apex of the right lung posteriorly. Heart size, rate and rhythm were normal.

Laboratory Findings.—Urinalysis was normal; leukocyte count was 9,650 per mm., Schilling differential was within normal limits; erythrocyte count, hemoglobin and hematocrit were normal. The blood sugar and nonprotein nitrogen were normal. No acid fast bacilli were found on examination of concentrated specimens of sputum.

Chest plate revealed a dense shadow in the upper

portion of the right lung field. This was interpreted as representing either a tuberculous process or a neoplasm. Sputum examination was repeated daily for tubercle bacillus without positive findings. Sputum examination for malignant cell study was unsuccessful because of the small amount of sputum.

Two days after entry, bronchoscopy was done and was thought to be essentially negative.

Sputum samples of the fifth and sixth days after entry

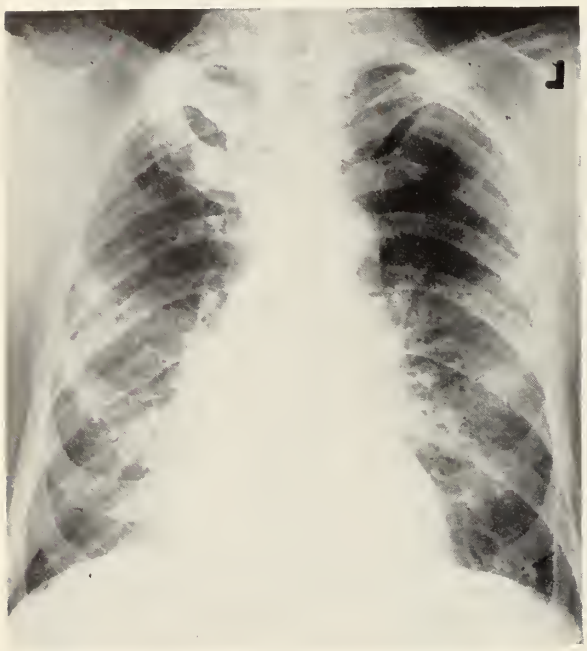


Fig. 3.

revealed "some phagocytic cells containing hemosiderin pigment and a moderate number of fat globules."

Course in Hospital.—Temperature, pulse and respiration fell to normal limits on day following admission and the patient continued to improve during his stay in hospital.

A diagnosis of lipoid pneumonia, right upper lobe, was made. The patient was discharged on July 21, 1948, to be treated as an outpatient. He returned to the office in two weeks and has been followed since that time.

Figure 1 is a chest plate taken in November, 1944, about four years prior to hospitalization and shows both apices to be clear.

Figure 2 is a photograph of an x-ray film taken the day preceding hospitalization and shows the dense shadow in the upper lobe of the right lung. It is suggestive of an inflammatory process but neoplasm cannot be ruled out with certainty.

Figure 3 is a photograph of an x-ray film taken six weeks after discharge from the hospital and shows some residual involvement, although clearing has taken place despite the fact that he received no therapy and was carrying on his usual occupation.

Six months later the apex was entirely clear which is most unusual since residual fibrosis usually occurs in these patients even though the patient becomes asymptomatic.

DISCUSSION

This case reemphasizes the danger of oily nose drops constantly administered, particularly if the patient is semicomatose, uncooperative, or, as in this case, falls asleep shortly after the drops are instilled. Many authors have pointed out the dangers of using oily solutions as a lubricant for intubation and some have shown that the fats of milk if aspirated may produce a lipoid pneumonia.

Schnieder has reported seven cases of lipoid pneumonia discovered during a routine survey for tuberculosis. He points out the danger of mistaking this condition for cancer of the lung and refers to the many reports of lipoid pneumonia which occurred as the result of taking mineral oil for constipation.

Burger and Wilbur feel that the disease as it occurs in infants and children is usually due to aspiration of oily vitamin drops or milk but that in the chonically ill mineral oil as a laxative, intubation using mineral oil as a lubricant, regurgitation and aspiration of gastric contents and diminution or absence of gag or cough reflex are the more important causes of atypical pneumonia.

Laughlen pointed out that lipoid pneumonia predisposes to infection and the infection causes death if death occurs.

Pinkerton has shown that when a mild reaction occurs the condition may be reversible but, if the process is severe and extensive, fibrosis will occur with its concomitant effects on respiration.

CONCLUSION

A case of lipoid pneumonia of the right upper lobe of the lung induced through instillation of oily nose drops over a period of one year with complete recovery when the drops were discontinued is reported.

That this condition is probably more frequent than is generally appreciated is suggested by the reports in the literature and suggest the advisability of using considerable caution and thought before prescribing mineral oil laxatives or oily nose drops.

634 N. Grand Ave.

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AUREOMYCIN SHOWS PROMISE AS TREATMENT FOR MUMPS

Results obtained in treating three patients with mumps suggest that aureomycin may be of definite value in this disease, according to two doctors from Sayre, Pa.

Two women treated for mumps with aureomycin showed definite improvement within twenty-four hours after receiving the first dose of aureomycin, Drs. Wilfred D. Langley and John Bryfogle say in the August 12 *Journal of the American Medical Association.* Aureomycin was given to both women on the second day after swelling in the glands began.

Another patient, a man, received the drug less than twenty-four hours after symptoms of mumps were first noticed. Forty-eight hours after treatment was begun, he showed definite improvement.



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PRESIDENT'S PAGE

The House of Delegates of the American Medical Association at its San Francisco session approved dues of $25.00 for the year 1951. However, the dues of $25.00 in 1951 will include subscription to the *Journal of the American Medical Association,* which has not been the case in 1950, the Journal going only to Fellows of the American Medical Association. The status of Fellow membership for 1951 will be decided at the Cleveland Interim Session in December. Opinion seems to favor continuation of the Fellow classification with dues of only a few dollars a year. Subscription to *The Journal* in 1951 will be $15.00 for other than members.



Approximately 1,100 members of the Missouri State Medical Association have not paid membership dues in the American Medical Association for 1950. The American Medical Association will not accept members in 1951 who have not paid 1950 dues.

With the *Journal of the American Medical Association* costing $15.00 in 1951, physicians wishing the journal can become members by paying the additional $10.00. This year it has been necessary to pay the $12.00 Fellowship dues in order to obtain the journal, with the $25.00 being in addition, making it $37.00 for membership and Fellowship, including the journal.

W. A. Bloom

Editorials

CLINICAL CONFERENCE OF KANSAS CITY SOUTHWEST CLINICAL SOCIETY

The Kansas City Southwest Clinical Society will hold its twenty-eighth Annual Fall Clinical Conference in Kansas City on October 2 to 5. All sessions will be held in the Municipal Auditorium.

The program will include presentations by seventeen guest speakers and thirty-five Kansas City physicians will speak at section lecture groups. On Monday evening, October 2, a clinicopathologic conference will be presented, and round table luncheons will be held each day during the session. The winner of the first annual intern and resident award will be made before the general assembly on Tuesday afternoon and his thesis will be presented. A dinner and entertainment will be held on the evening of October 3.

Guest speakers for the meeting will be Joseph S. Barr, M.D., Boston, Clinical Professor of Orthopedic Surgery, Harvard University Medical School; Brian B. Blades, M.D., Washington, D.C., Professor of Surgery, George Washington University; Edward W. Boland, M.D., Los Angeles, Assistant Clinical Professor of Medicine, University of Southern California; William L. Bradford, M.D., Rochester, N. Y., Professor of Pediatrics, University of Rochester; Edwin N. Broyles, M.D., Baltimore, Associate Professor of Otolaryngology, Johns Hopkins University; Paul R. Cannon, M.D., Chicago, Professor of Pathology, University of Chicago; Bayard Carter, M.D., Durham, Professor of Obstetrics and Gynecology, Duke University; Arthur Grollman, M.D., Dallas, Professor of Medicine, Southwestern Medical University; Elmer Hess, M.D., Erie, Pa., Chief Urologist, St. Vincent's Hospital; Charles L. Martin, M.D., Dallas, Professor of Radiology, Southwestern Medical University; Alton Ochsner, M.D., New Orleans, Professor of Surgery, Tulane University; Herman E. Pearse, M.D., Rochester, N. Y., Professor of Surgery, University of Rochester; F. E. Senear, M.D., Chicago, Professor of Dermatology, University of Illinois; Dwight L. Wilbur, M.D., San Francisco, Clinical Professor of Medicine, Stanford University; Irving S. Wright, M.D., New York City, Professor of Clinical Medicine, Cornell University; Mr. Clem Whitaker, Director, and Miss Leone Baxter, General Manager, National Education Campaign, American Medical Association.

PHYSICIAN DRAFT LEGISLATION INTRODUCED

Two congressmen early in August introduced bills which authorize the President to require registration and make calls for military service on certain physicians and other professional specialists up to the age of 45. Early hearings are expected on these bills and action may be taken before THE JOURNAL reaches members of the Association. A résumé of the bills, however, is given.

H. R. 9294 amends the Selective Service Act by authorizing the President to require special registration and make draft calls on persons in needed professional, technical and specialist categories who have not reached the age of 45. Such inductions, however, would not exceed twenty-one months in the armed forces. In making calls for such persons the President would induct in the following order of priority: (1) Those who participated as students in the A. S. T. P. or similar programs administered by the Navy and persons deferred from service during World War II for the purpose of pursuing their education in the same scientific categories covered by such programs and who have had no active duty as commissioned officers; (2) those who have participated in such programs and who have served on active duty as commissioned officers for less than twenty-one months; (3) those who have less than ninety days' prior active honorable military duty; (4) those whose total active honorable military duty is less than twenty-one months, and (5) others prescribed by the President.

H. R. 9311 is identical with H. R. 9294 except that a paragraph is added providing that persons who are registered under this act and who are not commissioned in any of the services and are otherwise eligible and qualified for commission, who apply for a commission in either the Army or Navy may be deferred from induction for a period of sixty days to allow for processing and acceptance of such commission.

The Council on National Emergency Medical Service of the American Medical Association on August 3 expressed its support of legislation, if necessary, to provide for the military call on a priority schedule of physicians needed for national defense.

The Council's recommendation, submitted to the American Medical Association Board of Trustees for approval, placed emphasis on the first call of the nearly 8,000 nonveteran physicians who received training at government expense during and since World War II and of all others who were deferred in order to complete their medical studies.

The recommendation was based on the understanding that an appropriate body be established in government to effect certain measures relative to the utilization of physicians by the medical departments of the Armed Forces. These measures are: (1) That the induction of physicians into the Armed Forces be kept to the minimum needed to provide adequate medical service to the personnel of these forces; (2) that appropriate consideration be given to current and potential needs of the civilian population for medical services; (3) that in calling civilian physicians, including reserve officers, for military service the following priorities

be observed: (a) those physicians who were permitted to pursue their medical educations during World War II and who did not serve as medical officers, (b) those physicians who were below the Selective Service age during World War II, (c) those physicians who graduated prior to World War II but did not serve with the military services during the last war and those physicians who had service as medical officers but entered service subsequent to V-J Day, (d) those physicians who served the least time in World War II during active hostilities; (4) that in case of prolonged mobilization some provision be made for the rotation of physicians between the military services and the civilian population.

Members of the Council on National Emergency Medical Service of the American Medical Association are: Drs. James C. Sargent, Milwaukee; Arthur A. Brindley, Toledo; Harold S. Diehl, Minneapolis; Elmer L. Henderson, Louisville; Frank H. Lahey, Boston; Perrin H. Long, Baltimore; Harold C. Lueth, Omaha; Roscoe L. Sensenich, South Bend; Stafford L. Warren, Los Angeles; Herbert B. Wright, Cleveland; George F. Lull, Chicago.

OVERCROWDING IN MENTAL HOSPITALS

The tendency toward overcrowding in state mental hospitals is evidently still on the increase, according to a recent report of the Public Health Service. The report, based on a survey by the National Institute of Mental Health of the Public Health Service, shows that more than 600,000 persons—equal to the combined populations of Nevada and New Hampshire—were patients in state mental hospitals during 1948.

The report was based on data that 207 state mental hospitals supplied for the survey. These institutions indicated that the degree of overcrowding increased by almost 10 per cent during the year covered, rising from 16.7 per cent at the end of 1947 to 18.2 per cent at the end of 1948. There were three states in which the average daily resident patient population was about one and one half times the rated hospital capacity.

According to R. H. Felix, M.D., Director of the National Institute of Mental Health, in 1948 state mental hospitals had less than half the number of physicians recommended for adequate medical and psychiatric care of resident patients. The number of full-time physicians in state mental hospitals fell 53 per cent short of the number required under standards approved by the American Psychiatric Association. The shortage in personnel is and has been more severe in physicians, clinical psychologists, psychiatric social workers, nursing personnel, attendants and other specialized therapeutic workers. It was pointed out that the adequacy of care received by patients in any hospital depends largely upon the relationship between the number and type of well trained personnel and the number of patients under care. This relationship may be expressed in terms of the average number of patients served by each full time employee. However, it should be noted that the ratio of patients to total employees is not as meaningful as the ratio of patients to employees of specific occupational groups. Thus hospitals really tending to fulfill a therapeutic function may differ greatly in their patient-physician ratio from those in which the major emphasis appears to be on custody.

The survey indicates that, with few exceptions, Southern and Western states have relatively fewer facilities for the mentally ill than Northern and Eastern states. The average daily resident patient population in state mental hospitals in 1948 was 463,496, or more than 3 patients per 1,000 civilian population. However, there is considerable variation among states. For example, New York has a ratio of 5.5 patients per 1,000 population, as compared to 1.7 in New Mexico. Since state hospitals accounted, in general, for approximately 95 per cent of the resident patient population in all nonfederal public mental hospitals, those differences appear to be fairly good indices of the state-to-state variation on the availability of facilities for the care of the mentally ill.

In every age group, male first admission rates were higher than those of females. Almost one third of the first admissions were of patients 60 years of age or older.

Patients diagnosed as psychotic accounted for more than 80 per cent of all diagnosed first admissions. The diagnosis of dementia praecox was reported in about 20 per cent of those admissions, psychosis with cerebral arteriosclerosis in 16 per cent, senile phychosis in 13 per cent and manic-depressive psychosis in 6 per cent. These four categories accounting for more than half of all diagnosed first admissions.

Among the first admissions for psychoses, the following diagnoses showed higher rates for males than for females: general paresis; psychosis with other forms of syphilis of the central nervous system; alcoholic psychosis; psychosis due to trauma and psychosis with psychopathic personality. Among females, rates were distinctly higher for the involutional psychoses.

There was a 6 per cent increase in first admission rates from 1947 to 1948, and a 2 per cent increase in the rate for patients treated and cared for by state mental hospitals. These increases do not necessarily mean a corresponding increase of hospitalizable mental illness of the population. Increased availability of hospital space and personnel frequently influence admission and resident patient population rates more than true changes in such mental illness.

The report, entitled "Patients in State Mental Hospitals: 1948," is Mental Health Statistics Current Report MH-B50, No. 4, copies of which may be obtained without charge from the National Institute of Mental Health, Public Health Service, Bethesda 14, Maryland.

Organization and Economics

NEWS NOTES

Ralph R. Coffey, M.D., Kansas City, participated in a two week Child Guidance course at Purdue University in July and taught "Health Problems."

Marion Wachowiak, M.D., Palmyra, recently received the Silver Distinguished Service Cross awarded him fourteen years ago by the government of the Republic of Poland, now in exile in Ireland. The award was made for distinguished service in the Polish colony in St. Louis.

Robert A. Moore, M.D., St. Louis, attended the International Cancer Research Congress held in Paris in July.

H. R. Popejoy, M.D., California, was the honored guest at a picnic dinner on July 21 given by the California Lodge No. 183, A. F. & A. M., and O. E. S. No. 521.

M. Hayward Post, M.D., St. Louis, attended the International Congress of Ophthalmology which met in London July 17 to 22.

Louis H. Kohler, M.D., St. Louis, was presented a television set by the employees of the St. Louis State Hospital at a surprise party on July 20, honoring his twenty-five years of service at the hospital.

Danely P. Slaughter, M.D., Chicago, Assistant Professor of Surgery, University of Illinois, will speak on "The Surgical Management of Cancer of the Head and Neck" at a meeting at the Tiger Hotel, Columbia, on September 22, to which members are invited. The address is sponsored by the Ellis Fischel State Cancer Hospital in conjunction with the State Division of Health and the Missouri Division of the American Cancer Society. A dinner at 6:30 p. m. will precede the address.

Robert W. Bartlett, M.D., St. Louis, addressed the Rotary Club of De Soto on June 13 and spoke on "The Cancer Problem as It Affects the Layman."

Roy V. Boedeker, M.D., St. Louis, will address the General Practitioners Study Club of Greater St. Louis on September 20 on "Office Gynecology." A film on "Rheumatoid Arthritis" will be shown.

The American Roentgen Ray Society will hold its 50th anniversary meeting in St. Louis, September 26 to 29, with headquarters at the Jefferson Hotel.

J. Earl Smith, M.D., St. Louis, is chairman of the St. Louis local committee for the meeting of the 78th annual session of the American Public Health Association which will convene in St. Louis October 30 to November 3.

The Rev. Alphonse M. Schwitalla, S.J., St. Louis, dean emeritus of the St. Louis University School of Medicine, celebrated his fiftieth year in the Society of Jesus on July 25th. A high mass was offered in St. Francis Xavier Church.

Examinations will be held by the State Board of Medical Examiners of Missouri in Kansas City on October 19, 20 and 21. The Board will meet on October 18 to consider reciprocity applications.

Edwin C. Schmidtke, M.D., Columbia, was elected president of the State Board of Medical Examiners at a recent meeting. Walter L. Brandon, M.D., Poplar Bluff, was elected vice president; Howard B. Goodrich, M.D., Hannibal, secretary-treasurer. Other members of the board are W. O. Finney, M.D., Chaffee; F. T. H'Doubler, M.D., Springfield, and Edwin C. White, M.D., Kansas City.

MUSINGS OF THE FIELD SECRETARY

The 1950 Missouri State Fair will be history by the time this issue of THE JOURNAL is mailed. Again this year the Missouri State Medical Association's Committee on Health and Public Instruction used the opportunity presented by the Fair to place an instructive scientific exhibit before the view of the many observing Fair visitors. This was accomplished by an exhibit entitled "The Skin in Health and Disease" through the courtesy of the Bureau of Scientific Exhibits of the American Medical Association. Informative literature relating to the issue of socialized medicine took prominent part in the display. The Association's exhibit was a part of the "Hall of Health"—a group of health exhibits by members of the Missouri Health Council, presented in the Educational Building.

Afternoon and Councilor District meetings have been scheduled tentatively in all districts for this fall except in the two larger city areas, Kansas City and St. Louis, where medical meetings already are somewhat numerous. The Missouri Academy of General Practice also is scheduling a series of evening postgraduate meetings during the next four months in eight locations in rural Missouri.

A regular meeting of the Missouri Health Council was held at the Governor Hotel, Jefferson City, on August 2. A good representation of the membership was present including associate members of county health councils. The entire program cen-

tered around "How to Make a Local Health Council Tick." The informality of the discussion and the down-to-earth manner in which it was carried on was most conducive to helpful ideas being transported back to the local action front.

There are approximately fifty-five local health councils now in various states of development in the state. Increasing interest on the community level in health matters is evidenced by the growth of these councils.

DEATHS

Kerr, Homer L., M.D., Crane, a graduate of the St. Louis College of Physicians and Surgeons, 1901; Fellow of the American Medical Association; Past President of the Missouri State Medical Association; member of the Ozarks Medical Society; aged 74; died June 18.

Kroeger, George B., M.D., University City, a graduate of Washington University School of Medicine, 1904; member of the St. Louis Medical Society; aged 75; died July 8.

Henske, Andrew C., M.D., St. Louis, a graduate of Washington University School of Medicine, 1906; Fellow of the American Medical Association; member of St. Louis Medical Society; aged 67; died July 9.

Mays, Joseph W., M.D., St. Joseph, a graduate of Ensworth Medical College, St. Joseph, 1900; honor member of the Buchanan County Medical Society; aged 78; died July 10.

Fischel, Walter, M.D., St. Louis, a graduate of Washington University School of Medicine, 1905; Fellow of the American Medical Association; member of the St. Louis Medical Society; aged 69; died July 22.

Meyer, Harry H., M.D., St. Louis, a graduate of Missouri Medical College, 1897; honor member of the St. Louis Medical Society; aged 78; died July 22.

Guggenheim, Lewis C., M.D., Kansas City, a graduate of the Kansas City Homeopathic Medical College, 1899; honor member of the Jackson County Medical Society; aged 75; died July 23.

Bertram, Charles W., M.D., St. Joseph, a graduate of Ensworth Medical College, St. Joseph, 1906; Fellow of the American Medical Association; member of the Buchanan County Medical Society; aged 71; died July 23.

Meinhardt, Victor J., M.D., St. Louis, a graduate of St. Louis University School of Medicine, 1923; Fellow of the American Medical Association; member of the St. Louis Medical Society; aged 56; died July 26.

Fulkerson, Perry, M.D., St. Joseph, a graduate of Ensworth Medical College, St. Joseph, 1895; honor member of Buchanan County Medical Society; aged 79; died July 31.

RURAL HEALTH AND HOW TO GET IT

H. E. SLUSHER
JEFFERSON CITY, MO.

I CONSIDER IT a rare privilege to have this opportunity to be with you today and to discuss as a layman the subject which has been assigned to me. As chairman of the American Farm Bureau Federation rural health committee and having worked with Dr. Crockett, your friend and mine, I feel that I know something about your organization as well as the problem which is of such mutual interest to us. I am quite honest when I say that I do not believe the doctors realized that there was a rural health problem in this country until Dr. Crockett and his committee began their great work. Suddenly doctors have begun to realize that it is not only a question of better health for the people, but that it is a question of health for the doctor. It is not only health, but survival.

Life is like that. One sails serenely along, thinking that everything is as it should be; then finds that the old house which has stood for more than a hundred years suddenly has the foundation eaten up by termites. They have been boring from within for sometime but had not been noticed. Then, all at once, it is too late.

I come from Missouri which is noted for its mules —and as the home of the President—no relationship between the two, of course. My first reaction when invited by Mr. O'Brien to make this long trip and discuss rural health was to say "No." I had always had the feeling that doctors, of all people, did not need anything. Too long, I suppose, I had gone to them and been told.

After due deliberation, however, I decided that perhaps doctors as a group were beginning to feel a bit lonely as again and again questions were raised about the trends of government. I have always felt a kinship for lonely people, for by nature I am a lonely person, especially when issues seem so plain to me, but my farm people seem indifferent. I felt that it might be heartening to you to know that the Farm Bureau Federation, made up of some 1,409,000 farm families, at times asks some of the same questions that you are asking. Many of our people are beginning to question the wisdom of the federal government doing everything for us. Many of us do sincerely believe that "just as the night follows the day," so government aid to the individual is followed by government control of the individual. We are beginning to realize this more fully since our farm price support programs are beginning to be made mandatory. Just as you are going to need our help, we as farmers are going to need your help.

Once, when I was traveling through the Ozark country, I stopped to visit with an old native.

"Lived here long?" I inquired idly.

"Nigh onto sixty years," he replied.

Looking out at the rocky, lonely country, I said, half in jest, "Why?"

The old man considered a moment. "Well, this is the kind of country where if you can't get what you want, you can get along without it pretty well, seems as though."

I rather liked that old man's philosophy. It is a philosophy which helped build this great country. It is a philosophy which you and I have got to help sell to a lot of people, to young people who have been reared in an era of government "give me," to old people who have been made wild promises by leaders who want to stay in politics.

The last twenty years has done something to our "rugged individual" philosophy. Independence has been sold for promised security.

A dim-witted chap lived in a small town and had no means of support. The boys got together and decided to chip in 50 cents each and create a job for Lem. They then appointed a paymaster. Lem's job was to polish an old brass cannon in the town square

President, Missouri Farm Bureau Federation, Jefferson City, Mo.
Presented at the 6th Annual Conference of Presidents and Officers of State Medical Associations, San Francisco, Calif., June 25, 1950.

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[1]Cooke, R. A.: *Allergy in Theory and Practice.* Philadelphia: W. B. Saunders Company, 1947, p. 186

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every day, come rain or shine. Each week Lem was to get $7.00. Lem worked with great zeal for about three months, polishing and polishing; then one Saturday night he approached the paymaster with a wild gleam in his eye.

"I'm quitting this here job," he announced.

"What's the matter?" the paymaster asked, "Aren't you satisfied with the work and pay?"

"Oh, yes," Lem replied, "but I've been saving my money. Yesterday I bought a cannon of my own. Now I'm going into business for myself."

Crazy, you will admit, but Lem at least had the right idea, so far as independence was concerned.

Gentlemen, I did not come two thousand miles to tell you what a grand bunch of fellows you are. You have helped to make this country the healthiest place in the world to live, I will have to admit. Yet, as a layman, I want to tell you now that as public relations people you rank as the world's worst.

What did you do when the people began to complain about the health service they were or were not getting? Did you do anything about it? Did you call a community-wide meeting of all interested groups to discuss the complaint? Did you take up the matter with your county medical group? Did you get busy and suggest that ways and means might be found to get more doctors, more nurses, more public health centers for prevention work? No, you merely shut the door to the public and said, "It is none of their business. Public health is the doctor's business, and we will take care of it in our own way."

Not long ago I read an article in the Rotary magazine, entitled "Free Enterprise, Are Its Friends Killing It?" That same thought could be applied to health, and to the medical profession. "Voluntary health insurance, are the doctors killing it?" could be the title.

Study the socialistic movement. Why did the government get into private business? Because private business refused to recognize that they were failing to meet their responsibilities. The government then stepped in and, once in, the politicians seized the opportunity which was theirs.

There will never be socialized medicine in this country if the doctors will try just a little to prevent it, if you will not hold yourself aloof from the rest of the pubic who also have an interest in this matter.

From a public relations standpoint, and after all that is what this whole issue is, if you will just take a little of your golf or fishing time and concern yourself with talking these things over with some of your patients, with civic groups, and, yes, even some of the local farm organizations, you will be making some progress.

I happen to live in a town of 25,000 people. You can get an appointment with a dentist at the end of six weeks. You can usually see a doctor in his office by waiting from two to four hours. When I complain that we need more doctors, it does not satisfy me to be told that there are enough doctors already, that they are just not properly distributed. Now, if that is a fact, you need to meet with the people of the community and systematically prove that argument and then proceed to cooperate in getting a better distribution of those doctors.

State medical associations and county medical associations can do a great deal in bringing about a better understanding of the problem. Every patient is subject to his doctor's influence. Giving pills and using a knife is not enough. The patient is a human being and if not treated as such we will have socialized medicine, and we had just as well have it.

Have you ever heard of public relations? Well, that is a little system which has grown up in this country whereby a minority group enlists support of other individuals or groups for purely selfish reasons, for self-preservation, if you please. Rather effective, too. Farmers have only recently become aware of the importance of public relations. Under the government farm price support program we ran into a little potato problem. It only amounted to 2 per cent of the national farm income, but we almost lost a farm program as a result of it. Seriously, I do not think it had any real effect upon the number of potatoes eaten by the consumer or what was paid for them, but the important thing was that the consumer thought it did.

"Public Relations!" When I want a doctor, I want a doctor. If I cannot get one, I want to know why I cannot get one. I want to know if it is to my best interests that there are a limited number of doctors or is it to the best interests of the profession that there are not enough doctors? When I get caught I am apt to form some socialistic opinions unless you have done your job well in advance.

Farmers built America. Once they were independent. Their rewards were in keeping with the volume and quality of their efforts. Through most of the nation's history, its farmers have been the most important single influence on basic public attitudes. Gradually this position has been undergoing some fundamental changes. There was a time when 90 per cent of all gainfully employed Americans were engaged in agriculture. Today, less than 16 per cent of gainfully employed workers are now in agriculture; less than 19 per cent of the population is on farms, and approximately 15 per cent of the national income is derived from farm products.

To make the situation worse, where once nearly every person living in the city had a relative in the country, now the average consumer thinks that you get milk from a can, not a cow. The farmer has moved from his former position of self-containment into one of growing dependence upon price, the public and political enactments. That is why we have a job of public relations to do if we are to survive economically.

Labor unions scream and argue and threaten and beg for public support of more pay, less work, more pensions and ever greater and more costly "benefits." Government generates fear, holds out hope, asks for faith, appeals to charity and promises the impossible in order to gain public support for ever-expanding functions and ever higher appropriations.

The fundamental concept which motivates such efforts is wholly sound—that is, the concept that the group which wins the public wins its case. For public opinion, beyond question, is the sovereign power and the court of final appeal in a democracy such as ours. It is as true today as it was in the time of Abraham Lincoln when he said, "Public sentiment is everything, with public sentiment nothing can fail; without it nothing can succeed; consequently, he who molds public sentiment goes deeper than he who enacts statutes."

There is no difference in the actual power of public opinion today and in the days of Lincoln. There is a tremendous difference today, however, in the technics through which public opinion can be influenced, and in the speed with which the public can be reached. Eighty million listeners in their own private homes can hear a message simultaneously. With money, and the proper publicity technic, public opinion can be influenced for good or bad.

As labor organizations have developed they have

become aware of the importance of public relations work and they are now spending millions of dollars to influence elections.

The federal agencies of government have an estimated 3,000 full time and 25,000 part time publicity force. The United States Government is easily the world's largest employer of public relations talent. Ask your Congressman where the strongest lobbying force in this country is today. He will tell you that it is the many bureaus in Washington.

The Farm Bureau Federation has been made keenly aware of this in recent months. Our organization has taken the position that farm people through their organization leaders are best qualified to write a farm program. On the other hand, political leaders have decided that this philosophy was wrong, that the person who should write a program is the Secretary of Agriculture, a lawyer by training, and his staff members who were set up by law to administer programs, not write them. Thus, we see the whole force of government, thousands of personnel, and unlimited resources pitted against the strength of a volunteer membership farm organization, and for political reasons only. Physicians have the same problem with Mr. Ewing and his department. It is a mutual problem. The extent to which the individuals of our organizations recognize the mutuality of the problem and accept responsibility for doing something about it will determine where we are in government ten years from now.

Our people recognize our dependence. That is why we are so ready to cooperate with Dr. Crockett and his committee in attacking the problem of how to get better rural health.

"RURAL HEALTH AND HOW TO GET IT"

In Missouri many have a feeling that we can have almost anything that we want if we are willing to work hard enough to get it. Maybe we are old fashioned.

In the post office of an Ozark village, a stranger saw the local patriarch sitting on a flour barrel and whistling. A bystander informed him that the old fellow had already passed his one hundredth birthday. Impressed, the stranger exclaimed, "Isn't that amazing!"

"We do not see nothin' amazin' 'bout it, 'round here," was the laconic reply. "All he's done is grow old, and he took longer than most people would to do that!"

A great many doctors, too many in fact, have taken longer than they should to realize that better health involves more people than just doctors. The threat of socialized medicine has aroused many to action. The A.M.A. has its rural health committee. You have employed Aubrey Gates, one of the best men you could have found, to work with the State Extension Services, farm organizations, and state and local organizations in setting up health councils.

In Missouri, we now have an active State Health Council, also many county councils. Through their efforts, prepaid health insurance programs have been encouraged. Hospitals have been built. County health units have been established. Doctors have been located in rural areas. Nurses have been recruited. Better health has become the chief topic of discussion in many communities. The doctors have become interested in their community, not just in making money. They are operating with people, as well as on people.

Such a program is again leading the people to believe that the doctors are interested in better health. If this program is continued, if the doctors can convince people that they are not operating a closed shop, if you will just be leaders as well as doctors, you need have no fear of socialized medicine. If ever there is socialized medicine in this country it will be because the doctors defaulted on the biggest job they have, public relations. You cannot win without it.

Last winter I visited in England where an extremely socialized medical program just recently was put into effect. I talked to government men, to taxi drivers, to porters, to hotel maids, to businessmen and to farmers. Without exception they said the present medical service was unsatisfactory, it was complicated, it was costing too much in taxes and, if one needed immediate help, he had to pay for it with private means. Glasses could be had in two months by the latter method, while it took two years under the socialized program. Almost to a man, however, they said that eventually the trouble would work itself out. I think they were too optimistic. It is far easier to float down the stream of socialism than to row up. That is why I am so glad to see the medical profession in this country begin to recognize that there is a problem of community building and cooperatively working together.

Now, in the few remaining minutes that I have left I wish to discuss what I think a real health program for this country could be. In talking about a health program, most of the emphasis has always been put on the "curative" rather than the "preventive" phases. In my opinion such should be reversed, at least to some extent.

With high farm crop price supports which have been in the farm program since the close of the war, farmers have anticipated ruinous supplies and disastrous prices in the market place. They have known that high support prices mean inevitable rigid controls, controls which, if carried out, might mean less overall income rather than more. They know that price alone is not the answer. They know that price times production means real income. This is true in agriculture, as it is in industry, as it is also in medicine! What good does it do a doctor to charge $20.00 for an office call, if his price is beyond the reach of the sick person?

A great many farmers do not claim that the government owes them a "parity' income. They do believe that the government owes them the same protection in parity income as that given to industry and to labor. They believe that some government help is necessary to bring about stability in agriculture. Farmers no longer live on what they produce themselves. They live on what they can buy with what they get for what they sell.

What the farm family produces constitutes its real claim on society for a high standard of living, and in this respect agriculture has an enviable record. In the earlier days of this nation's history, 90 per cent of the American people were farmers. Now, only 18 per cent farm, according to the recent census figures on farm population. In truth, half of these farmers produce 90 per cent of the farm commodities that move in trade through commercial channels.

It is necessary in discussing national farm policy to realize that the problems of that half of our farmers who produce most of the agricultural commodities that move in trade are quite different from those of the other half. In the latter half there are a great many more who are no special problem. Then there are a million and a half who are subsistence farmers. Their problem is not price but opportunity.

Unfortunately, many of those who deal in public policy fail to realize the importance of separating the the subsistence farmer from the rest when discussing agricultural price problems. It is wrong to hold out in any way price guarantees to these farmers as an



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answer to their problem. Creative opportunity must be expended to care for this one fourth of the farm population.

The other three fourths of the agricultural producers, the American Farm Bureau Federation believes, should be protected by a farm price support program only as a form of insurance against drastic price declines, rather than as a method by which government guarantees profitable prices to farmers. We believe that the prosperity of the individual farmer, like that of the individual businessman or the individual worker or doctor, should depend on his own ability to produce efficiently and economically the commodities which consumers want and need.

In the last fifty years, research in the field of farm production and human nutrition has done much to advance the cause of agriculture. With the present type of agriculture, we are producing nearly 20 per cent more grain and fiber crops than we can find a ready market for. Contrary to common opinion, the United States ranks seventh as the best fed nation.

Our meat consumption is 145 pounds per person whereas that of Australia is 280 pounds, New Zealand 265, Argentina 263. If each one of the 150,000,000 population ate one ounce more meat per day, 25 pounds more per year, it would take 8,000,000 head of 1,000 pound steers more than we are producing and consuming today.

If we drank the optimum amount of milk for good nutrition—one and a half pints, not the customary one pint and children should have a quart—we would have to have 7,000,000 more diary cows than we have now.

This increase would release from grain crops 45,000,000 acres which is more production than we have ever stored in corn, wheat, cotton, tobacco, rice, peanuts and soybeans in any one year since we have had the farm program.

During the last few years consumers have learned to like meat. Total consumer expenditure for meat continues above the prewar relationship to consumer income. For every ten dollar bill spent, consumers used about 55 cents for the purchase of meat during the first quarter of 1950, compared with 50 cents prior to the war. Nevertheless, the greatest per capita consumption was in 1947 when meat was the highest in price that it has ever been. This fact is accounted for in the high level of income of the consumer and the scarcity of other things to buy. Now, with more radios, electric refrigerators, automobiles available, the food budget is being cut to provide money with which to buy the things the consumer wants but which do not necessarily contribute to his health.

In this country there are many artificial wants which are satisfied at the expense of the health of the individual or his family. The advertising in the press and over the radio has a tremendous effect upon how the individual spends his money. No one knows that better than the family physician.

My subject was "Rural Health and How to Get It." Fundamentally, what I have been discussing deals not only with rural health but with national health. Yet, I want to return to my subject. If rural health can be improved, the first step is economic. If the farmer has a stable income near parity he can not only have a high health standard but he can pay a physician for help when needed. If money is available, a community will be built in which a doctor will enjoy living and practicing. There will be health councils, health units, hospitals, freedom from government domination. It all ties together.

An animal agriculture will mean a healthy people, financially and otherwise. If there are people in this country who cannot afford to buy meat then let us go the route of government aid, if necessary, by a food stamp plan, where these people can be provided protein of animal origin. It would have to be a subsidization program, of course, but the people would be subsidized who needed the help and the burden would be taken off of the producer. It would cost some money, yes, but not as much as is being spent today. And there would be the advantage of a healthier nation.

Can such a health program be made to work? It can, if doctors will work with agricultural people and hundreds of others in educating the consuming public to the great value of proper nutrition in a health program. Many physicians may have to revamp their thinking. You may need to prescribe red meat more and red pills less. It can be done.

Get out of your office and cooperate with the people who are really interested in making a community click. You who are in smaller towns, get an invitation to a farm organization meeting. You could at least get a good meal occasionally!

Invite your local farm bureau president to visit your county medical association once in a while. Let him tell you what he thinks could be done with a real health program. Health is so much more than pills and knives. Health is something that concerns everybody, not just the doctors.

Gentlemen, perhaps I have failed to give you one new idea in dealing with the problems of health. Be that as it may, but as sincerely as I know how, I want to state that farmers of this nation are interested in better health for all. We do not believe that it is something with which the medical profession can deal alone. At present, you have a great deal at stake in the solution of the problem. Hold yourselves apart from the masses and there can be but one answer. That answer is as dangerous to agriculture as it is to the medical profession, as it is dangerous to the real health of this nation.

I have given what I think is the answer to both the rural health problem and partly to the national health problem. Farmers cannot do it alone. Farmers, educators, consumers, labor leaders and the medical profession, all working together unselfishly, can do the job with a minimum of government help.

NEW MEMBERS

Allen, Jerry H., Columbia, Boone County.
Avery, Bruce F., St. Louis, St. Louis Co.
Barelli, Pat A., Kansas City, Jackson County.
Basso, Donato E., St. Louis, St. Louis M. S.
Bell, Exter F., Jr., Senath, Dunklin Co.
Collins, John M., Sikeston, Scott Co.
Cox, William A., Jefferson City, Cole Co.
Crawford, O. B., Springfield, Greene County.
Crouse, John C., St. Louis, St. Louis M. S.
DeMott, Jack D., Kansas City, Jackson County.
Deyoe, Daniel H., Columbia, Boone County.
Dietrich, Sanford R., St. Louis, St. Louis M. S.
Doubek, John C., Jr., St. Louis, St. Louis M. S.
Forman, Louis H., Kansas City, Jackson County.
Gunn, Jack, Versailles, Morgan County.
Hall, Joe Bill, St. Louis, St. Louis M. S.
Harwicke, Henry, Columbia, Boone County.
H'Doubler, F. T., Jr., Bremerton, Wash., Greene Co.
Jennings, Ethlyn C., Parkville, Platte County.

COUNTY SOCIETY HONOR ROLL — 1950

(Societies which have paid dues for all members and date placed on Honor Roll)

Benton County Medical Society—December 3, 1949
Camden County Medical Society—December 5, 1949
Harrison County Medical Society—December 7, 1949
Monitean County Medical Society—December 9, 1949
Ste. Genevieve County Medical Society—December 15, 1949
Miller County Medical Society—December 16, 1949
Callaway County Medical Society—December 17, 1949
Webster County Medical Society—December 19, 1949
Perry County Medical Society—December 21, 1949
Dallas, Hickory, Polk Counties Medical Society—December 29, 1949
Andrain County Medical Society—December 30, 1949
Lewis, Clark, Scotland Counties Medical Society January 4, 1950
Howard County Medical Society—January 10, 1950
Pike County Medical Society—January 10, 1950
Linn County Medical Society—January 15, 1950
Shelby County Medical Society—January 18, 1950
Pettis County Medical Society—January 18, 1950
Henry County Medical Society—January 26, 1950
Carter-Shannon County Medical Society—January 27, 1950
Carroll County Medical Society—February 4, 1950
Morgan County Medical Society—February 8, 1950
Mineral Area County Medical Society—February 8, 1950
Laclede County Medical Society—February 9, 1950
Bates County Medical Society—Febrnary 13, 1950
Cape Girardeau County Medical Society—February 25, 1950
Vernon-Cedar County Medical Society—February 27, 1950
Johnson County Medical Society—March 3, 1950
Franklin County Medical Society—March 13, 1950
Lincoln County Medical Society—March 10, 1950
Cole County Medical Society—March 17, 1950
Marion-Ralls County Medical Society—March 24, 1950
Cass County Medical Society—March 27, 1950
Stoddard County Medical Society, May 11, 1950.
Chariton County Medical Society, May 15, 1950.
Barton-Dade County Medical Society, May 20, 1950.

Johnson, Cedric C., St. Louis, St. Louis Co.
Johnson, L. G., Springfield, Greene Co.
Kellett, John G., St. Louis, St. Louis M. S.
Kinman, Lindell M., St. Louis, St. Louis M. S.
Koehler, John William, St. Louis, St. Louis M. S.
Lichtor, Alexander, Kansas City, Jackson County.
Lilly, Terry E., Kansas City, Jackson County.
Loge, J. Philip, St. Louis, St. Louis M. S.
Meagher, Arthur J., St. Louis, St. Louis Co.
Meyer, James E., St. Louis, St. Louis M. S.
Miller, Dean M., Platte City, Platte Co.
Miller, G. V., Springfield, Greene Co.
Miller, Leroy J., Ashland, Boone County.
Moore, William A., St. Louis, St. Louis M. S.
Moorman, Thomas A., St. Louis, St. Louis M. S.
Murphy, Frank V., Jefferson Barracks, St. Louis Co.
Nicolay, Kenneth S., Kansas City, Jackson County.
Nuetzel, John A., Jefferson Barracks, St. Louis M. S.
Oliver, David R., St. Louis, St. Louis M. S.
Parker, A. C., Jr., Poplar Bluff, Butler County.
Rubin, Sidney, Kansas City, Jackson County.
Shapleigh, John B., St. Louis, St. Louis M. S.
Sutphin, John B., Joplin, Jasper Co.
Sweets, Henry H., Columbia, Boone County.
Thomas, Miles E., Kansas City, Jackson County.
Turner, Walker M., St. Louis, St. Louis M. S.
Walterschied, John H., Hannibal, Marion-Ralls County.
Washburn, Walter L., Kansas City, Clay Co.
Webb, Paul B., St. Louis, St. Louis M. S.
Windmiller, M. E., Columbia, Boone County.

SOCIETY PROCEEDINGS

FIRST COUNCILOR DISTRICT

DONALD M. DOWELL, CHILLICOTHE, COUNCILOR

Twenty-five physicians from ten counties attended an evening dinner meeting at Fraley's Drive-In on May 18 under the sponsorship of the Caldwell-Livingston County Medical Society.

Jacob Kulowski, M.D., St. Joseph, spoke on "The Management of Common Fractures."

Following this interesting and informative lecture, a Squibb's motion picture on "Nutrition" was shown.

Robert McCool, M.D., Secretary,
Caldwell-Livingston County Medical Society.

FOURTH COUNCILOR DISTRICT

OTTO W. KOCH, CLAYTON, COUNCILOR

Jefferson County Medical Society

The Jefferson County Medical Society held its first meeting of 1950 in the offices of Drs. R. H. Donnell and B. E. Schulein, Crystal City, on March 17.

L. M. Garner, M.D., Jefferson City, State Division of Health, discussed the premature infant program as it applied to Jefferson County and demonstrated a crib used for transporting these infants to a premature infant center, which in the case of Jefferson County is Children's Hospital in St. Louis. He was accompanied by members of his staff and a field representative of the U. S. Public Health Service.

A short business session was held and the following officers were elected: R. H. Donnell, M.D., Crystal City, president; V. E. Schulein, M.D., Crystal City, vice president; J. F. Rutledge, M.D., Crystal City, secretary-treasurer; Harry Yoskit, M.D., Festus, delegate; R. H. Donnell, M.D., Crystal City, alternate.

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Oct. 26 (Thursday)	SEMINAR ON USES OF ACTH AND CORTISONE
Nov. 2 (Thursday)	SEMINAR ON THE MEDICAL ASPECTS OF THE ATOMIC BOMB

No registration or enrollment fee for the three programs announced above.

Nov. 6-10	OBSTETRICS, GYNECOLOGY AND PEDIATRICS
Dec. 11-13	THERAPEUTICS

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A resolution was passed to have the president and secretary send a strongly worded protest to the Ozark Central Telephone Company against the repeated listing of the letters "M. D." after the name of Dr. Twersky, osteopath.

Those present were Drs. R. H. Donnell, V. E. Schulein and J. F. Rutledge, Crystal City; Thomas A. Donnell, DeSoto; B. Bolgar and Harry Yoskit, Festus, and E. J. Senn, Herculaneum.

J. F. RUTLEDGE, M.D., Secretary.

Lincoln County Medical Society

Twenty physicians from surrounding counties attended a medical dinner meeting at the Southern Air, Wentzville, on May 4.

Herman Erlanger, M.D., St. Louis, gave an interesting and informative talk on "The Treatment of Congestive Heart Failure." An extensive discussion by the group followed the formal presentation.

J. C. CREECH, M.D., Secretary,
Lincoln County Medical Society.

St. Louis County Medical Society

The St. Louis County Medical Society met on April 12 at the Health Center, St. Louis County Hospital, Clayton, at 8:35 p. m.

A report on the Annual Session of the Missouri State Medical Association was given by the delegates, Drs. Koch, O'Connell and Dyer. Dr. Dyer stated that the doctors were pleased with the colored television which was presented by Smith, Kline & French Laboratories and suggested that a letter be written to Mr. C. Mahlon Kline stating appreciation. Motion to this effect was made by Dr. Scheele, seconded by Dr. Vitale and passed.

Mr. T. R. O'Brien, Executive Secretary of the Missouri State Medical Association, informed the Society of H. R. 6000 which amends the Social Security Act to include approximately 11,000,000 more persons; and in section 107, provides for compulsory permanent total disability benefits. This legislation has passed the House and is now being considered by the Senate Committee.

The application of Dr. Rusan, Jr., was read to the Society. With Drs. Tashma, Dyer and Kingsland acting as tellers, the vote was 59 for admission and 41 against admission. A two-thirds vote being necessary, the application was rejected.

Dr. N. Vitale told the Society of H. B. 9540 which had passed the Senate—to socialize doctors, dentists and nurses. He urged the doctors present to write their congressmen in opposition to this bill.

William C. MacDonald, M.D., St. Louis, spoke on "Clinical Aspects of Gastritis," describing the various types of gastritis and their treatment. Following his discussion slides of the gastroscopic appearance of types of gastritis were shown.

Upon motion of Dr. O'Connell, the speaker was given a rising vote of thanks for his splendid presentation.

LOUIS F. HOWE, M.D., Secretary.

NINTH COUNCILOR DISTRICT

E. C. BOHRER, WEST PLAINS, COUNCILOR

Sixty-five physicians and their wives and guests attended an evening dinner meeting of the Ninth Councilor District at the Edwin Long Hotel, Rolla, on June 8.

Following an enjoyable social hour a bountiful trout dinner was served.

The evening program was initiated by introductions and a stimulating talk by W. A. Bloom, M.D., Fayette, President of the Missouri State Medical Association, on "It Is Later Than You Think."

The scientific program was given by Albert C. Stutsman, M.D., St. Louis, who spoke on "Diagnosis and Management of Sinus Disease," and Eugene G. Hamilton, M.D., St. Louis, of the Doctors' Medical Foundation, who discussed "Functional Uterine Bleeding."

The Phelps-Crawford-Dent-Pulaski County Medical Society served as host for the meeting.

E. C. BOHRER, M.D., Councilor.

South Central Counties Medical Society

The South Central Counties Medical Society met at the Presbyterian Church in Willow Springs, on May 17, for a dinner meeting.

The following members were present: Drs. R. W. Denney, S. W. Connor and A. C. Ames, Mountain Grove; Garrett Hogg, Jr., Cabool; T. J. Burns and S. G. Kramer, Houston; Leslie Randall, Licking; R. E. Musser, Willow Springs; Rollin H. Smith, A. H. Thornburgh and C. T. Callihan, West Plains.

The meeting was called to order by the president, Dr. Smith, in the office of Dr. Musser.

T. J. Ellis, M.D., Springfield, described a new method of early detection of pregnancy, new findings concerning the Rh factor and discussed advantages of total hysterectomy over subtotal.

William Wooldridge, M.D., Springfield, showed pictures of a number of carcinomas of the skin and commented on them.

Dr. Smith expressed the thanks of the Society to the speakers.

Dr. Ames spoke of a motion picture on detection of cancer of the breast that could be obtained and it was voted to obtain it for the next meeting at Mountain Grove.

The meeting adjourned to meet in Cabool on June 21.

Meeting of June 21

The South Central Counties Medical Society met in Cabool on June 21 for a dinner at the El Patio Hotel. The following members and visitors were present: Drs. R. A. Ryan, R. W. Denney and A. C. Ames, Mountain Grove; Garrett Hogg, Jr., Cabool; T. J. Burns and S. G. Kramer, Houston; R. E. Musser, Willow Springs; E. C. Bohrer, Rollin H. Smith and C. F. Callihan, West Plains; Paul Busiek and Mr. D. E. Caywood, Springfield.

After dinner the meeting was called to order in the office of Dr. Hogg by the president, Dr. Smith, and the minutes of the last meeting were read and approved.

Dr. Busieck gave a discussion of "Poliomyelitis," giving many newly learned facts and answering numerous questions.

A vote of thanks was given the speakers and the meeting was adjourned to meet in Mountain Grove on July 19.

Meeting of July 19

The South Central Counties Medical Society met for dinner at the Elliott Hotel, Mountain Grove, on July 19, with the following members and visitors present as well as several of their wives: Drs. R. A. Ryan, R. W. Denney, H. G. Frame and A. C. Ames, Mountain Grove; Garrett Hogg, Jr., Cabool; S. G. Kramer, Houston; R. E. Musser, Willow Springs; E. C. Bohrer, Rollin H. Smith and C. F. Callihan, West Plains; Charles E. Lockhart and William Johnson, Springfield.

Following dinner, the ladies held their own meeting.

A motion picture film on "Breast Cancer, the Problem of Early Diagnosis," from the American Cancer Society, was shown.

Dr. Lockhart spoke on the same subject, amplifying some points and bringing out some additional ones.

Dr. Johnson spoke on "Hematuria," dealing largely with malignant growths in the kidneys.

Dr. Smith expressed the thanks of the Society to the speakers.

It was voted to place A. H. Thornburgh, M.D., West Plains, on the honor roll.

The minutes of the last meeting were approved and a financial statement was presented.

The meeting adjourned to meet in West Plains on August 16.

A. C. Ames, M.D., Secretary.

TENTH COUNCILOR DISTRICT

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Mineral Area County Medical Society

The Mineral Area County Medical Society met on May 25 at State Hospital No. 4 at Farmington.

E. H. Parsons, M.D., St. Louis, gave an interesting, informative and practical lecture and demonstration of "Hypnotism and Its Dental and Medical Application."

Because of its interest to dentists as well as physicians, the dentists of the Mineral Area County Medical Society district were invited to attend.

A short business session was held after the lecture and demonstration.

The following members were present: Drs. S. C. Slaughter and Marvin Grossman, Fredericktown; Van W. Taylor and M. T. Haw, Bonne Terre; H. C. Gaebe, Desloge; E. F. Hoctor, F. R. Crouch, G. L. Watkins, Sr., James Stout and J. A. Brannen, Farmington; Byron Taylor and P. L. Jones, Flat River.

Dentists who attended were: Drs. R. F. Paul, Bonne Terre; R. O. Whitaker and G. M. McDavid, Fredericktown; Gale Thomasson and F. E. Norwine, Flat River.

Meeting of June 29

The regular monthly meeting of the Mineral Area County Medical Society was held at 8:00 p. m., June 29, at State Hospital No. 4, Farmington.

D. K. Rose, M.D., St. Louis, gave an interesting discussion on "Urological Problems From the Standpoint of the General Practitioner."

A short business meeting was held following the lecture.

The following members were present: Drs. James Stout, E. F. Hoctor, G. L. Watkins, Sr., and F. R. Crouch, Farmington; Van W. Taylor and H. M. Roebber, Bonne Terre; Ben M. Bull, Ironton; Dailey Appleberry, Rivermines; W. H. Barron and S. C. Slaughter, Fredericktown; H. C. Gaebe, Desloge; C. H. Appleberry and Paul L. Jones, Flat River.

Paul L. Jones, M.D., Secretary.

BOOK REVIEWS

Human Growth, the story of how life begins and goes on based on the educational film of the same title, by Lester F. Beck, Ph.D., Associate Professor of Psychology, University of Oregon, with the assistance of Margie Robinson, M.A. Harcourt, Bruce and Company, New York. 1949. Price $2.00.

This book is a result of extensive psychologic research which has been sponsored over a period of years by the E. C. Brown Trust, a foundation established in Oregon a decade ago for social hygiene education. It was written for boys and girls just entering their teens who wish to know about the changes that take place in their bodies as they grow up. It also is written for those adults who have the important tasks of helping young people achieve a wholesome view of life and growth. This book, "Human Growth," covers the same materials as the widely known film, "Human Growth," but the book is able to go into considerably more detail and should be read for itself, as well as in connection with the film. It tells in simple language how growth begins, and how it continues. It gives the full explanation of physical changes during adolescence and their meaning for adult life.

The book and the questions that go along with each chapter are meant to provide a basis for frank and intelligent discussion with adults about how life begins and how it continues.

The response of the many children who have seen the film, "Human Growth," and the many children who have read this book, is indeed gratifying. It is an excellent starting point for many mutual discussions about sexual facts and their meanings. There is great room for changes in attitudes of the adolescent toward the whole problems of sex and the emphasis placed by the instructor of parents can help guide the child to those phases of sex education that are considered important.

This book can be given freely to any child of the 10 to 14 age group and is especially valuable if read in conjunction with the film "Human Growth." This film can be obtained from many public schools and also from the Missouri Social Hygiene Association. It should be mentioned that a similar film, "Life Begins," made for 6 year olds, is also available from the Missouri Social Hygiene Association.

It is delightful to see the increased emphasis on wholesome sex education for young people that is being sponsored and helped by books and film of this type. It is a valuable addition of the educational facilities of any individual who has to deal with the sexual education of children. M. W. O.

Textbook of Physiology by William D. Zoethout, Ph.D., Professor Emeritus of Physiology in the Chicago College of Dental Surgery (Loyola University) and W. W. Tuttle, Ph.D., Professor of Physiology, College of Medicine, State University of Iowa. Tenth Edition. With 301 Text Illustrations and 6 Color Plates. C. V. Mosby Company. St. Louis. 1949. Price $4.75.

This tenth edition of the "Textbook of Physiology" by William T. Zoethout, Ph.D., and W. W. Tuttle, Ph.D., is a small volume but it is an excellent physiology and has in it all the modern, well established facts of physiology. The presentation is clear-cut, and the volume is well planned in every respect. The English is good, and the physiologic facts are definite.

This "Textbook of Physiology" would be an excellent physiology for a rapid review of the facts of physiology. It is, therefore, recommended to men who are studying for their Board Examinations, or for anything in which they need well established facts—minus theoretical considerations of the many problems in physiology.

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County people said go ahead, so we held a Meeting. Everyone suggested something. Windy Taylor thought "Taylor Pond" would be nice, because his place borders it—for about 30 feet! But we decided to call it "Turtle Pond" in honor of the real owners.

From where I sit, naming that pond wasn't the most important thing in the world—but the *way* we did it *was*. Everyone offered his opinion and then the majority vote decided it. That's the way it should be—whether it concerns naming a pond, or having the right to enjoy a friendly glass of beer or ale—if and when we choose.

Joe Marsh

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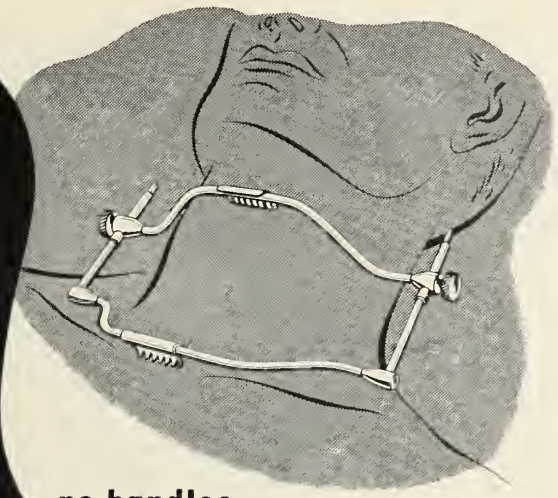
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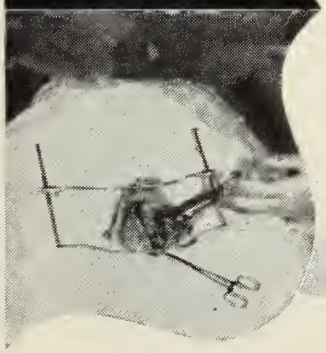
1. "A Study of Enriched Cereal in Child Feeding" Urbach, C.; Mack, P. B., and Stokes, Jr., J: Pediatrics 1:70, 1948.

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(1) Thorn, G.W.; Quinby, J.T., and Marshall, C., Jr., Ann. Int. Med. 18:913 (June) 1943.
(2) Orent-Keiles, E., and Hallman, L. F., Circular No. 827, United States Department of Agriculture, Bureau of Human Nutrition and Home Economics, Agricultural Research Administration, Dec., 1949.

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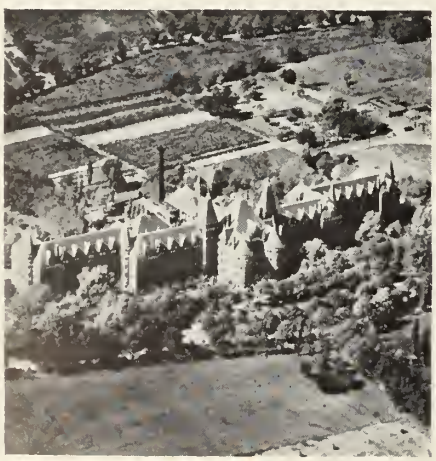
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Address all communications to The Journal of the Missouri State Medical Association, 623 Missouri Theater Building, 634 North Grand Avenue, St. Louis 3. Telephone: Newstead 0404-0405.

Subscription: $3.00 per year; 40 cents per copy.

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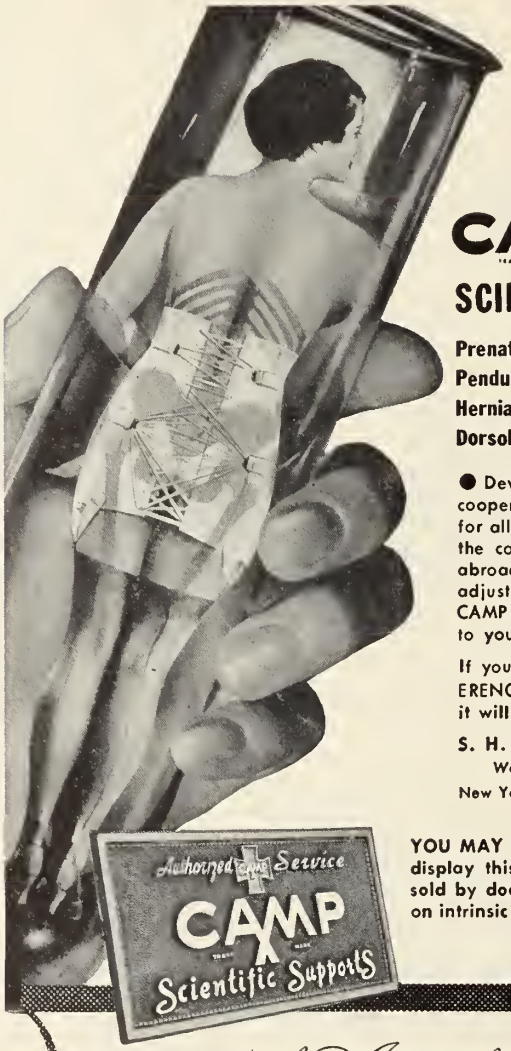
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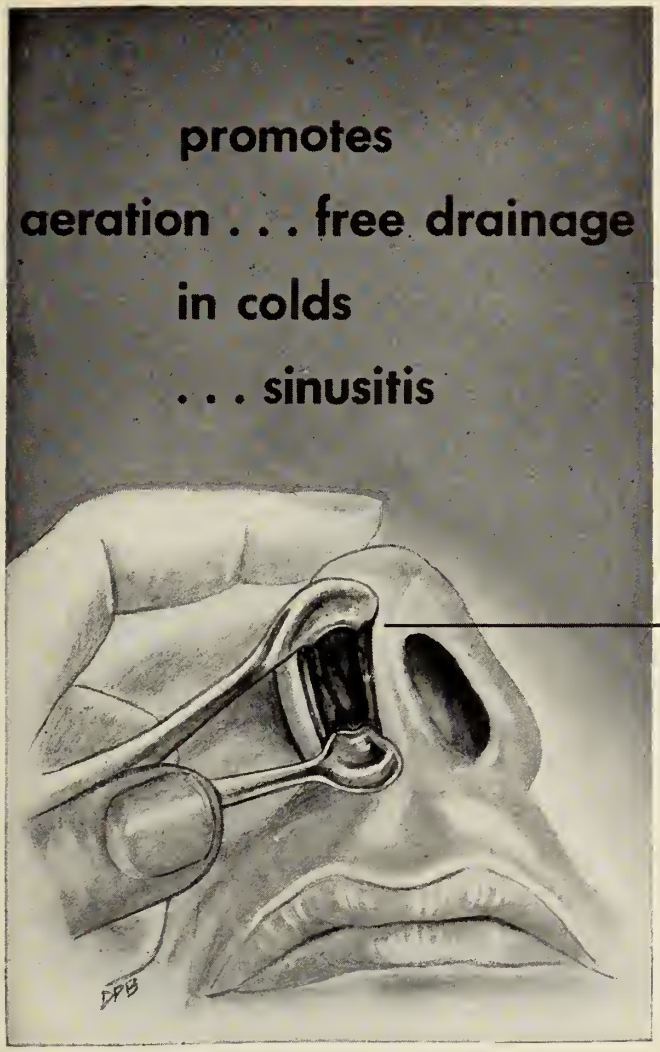
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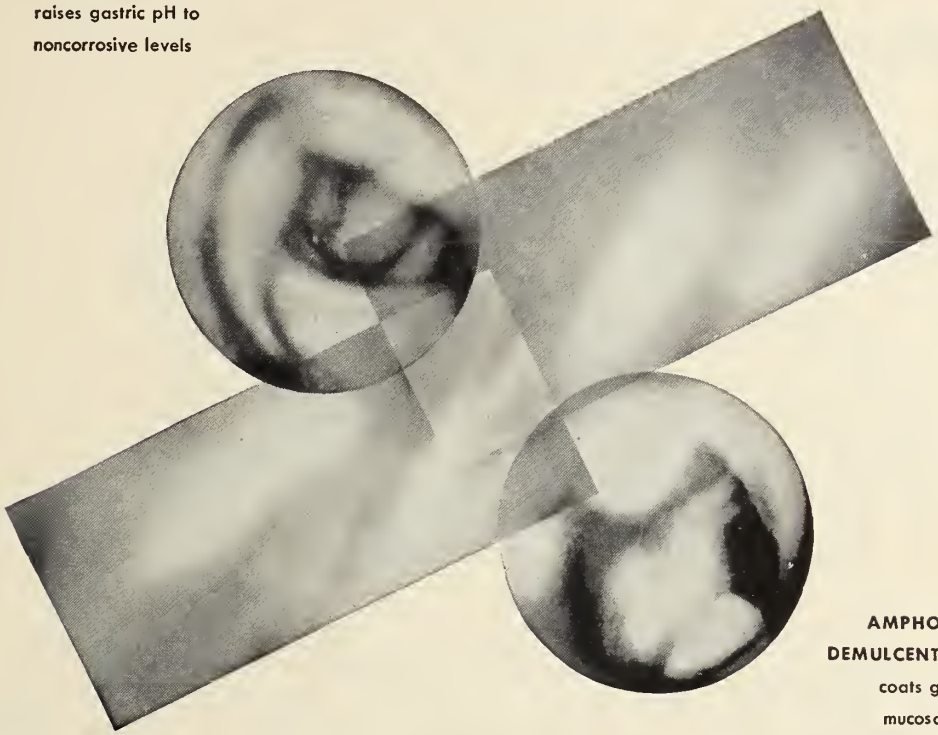
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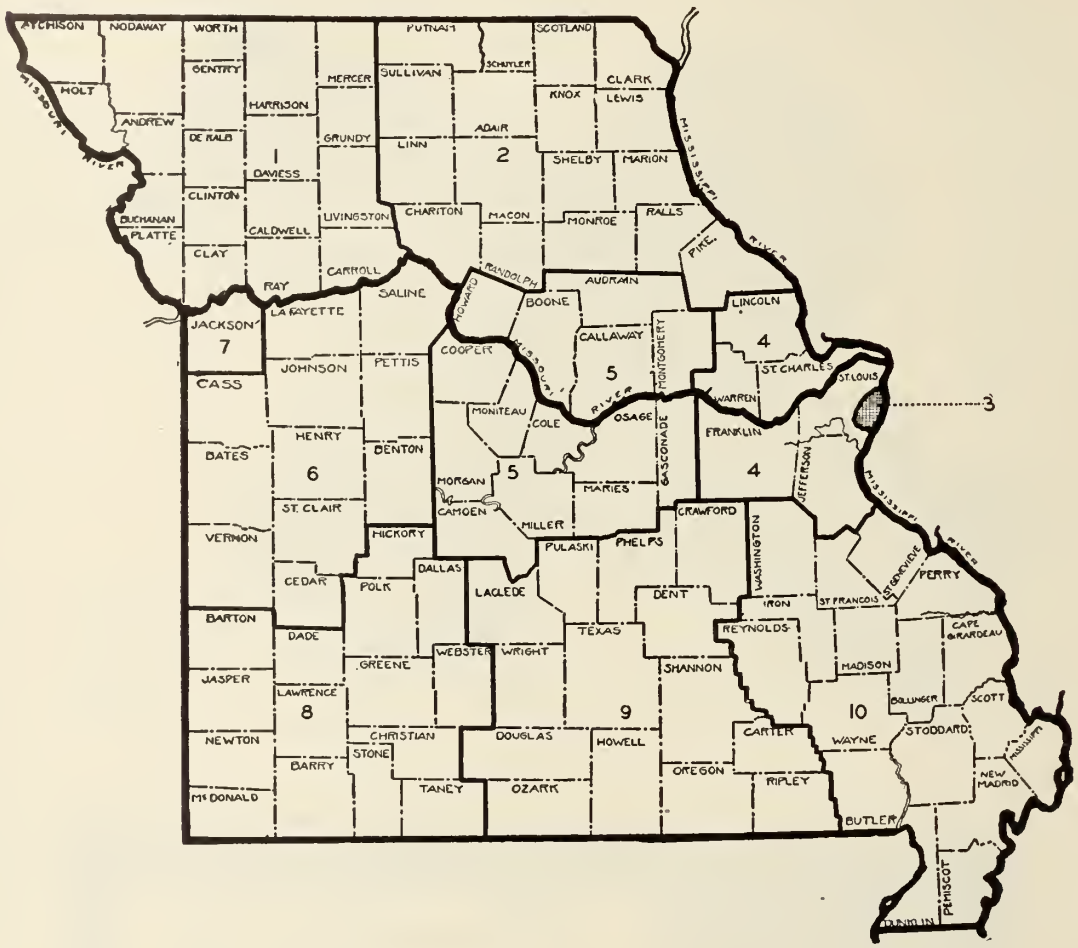
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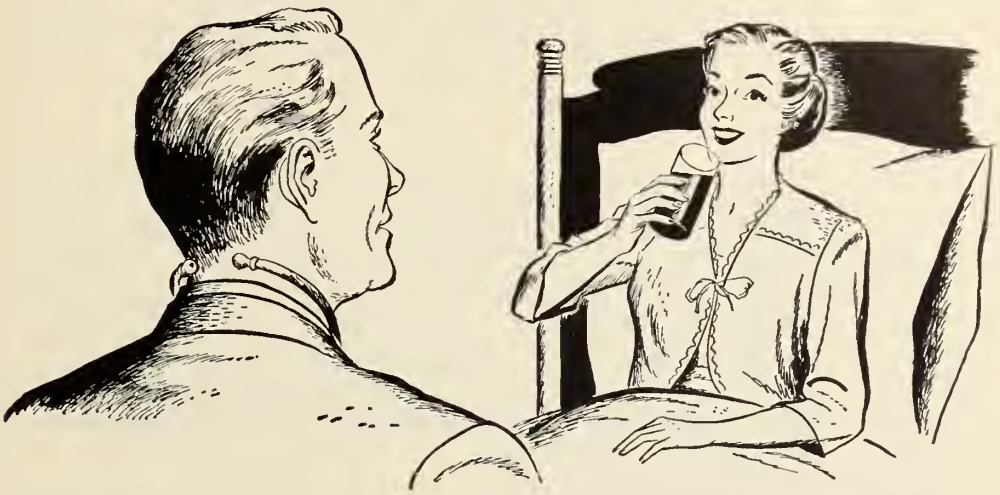
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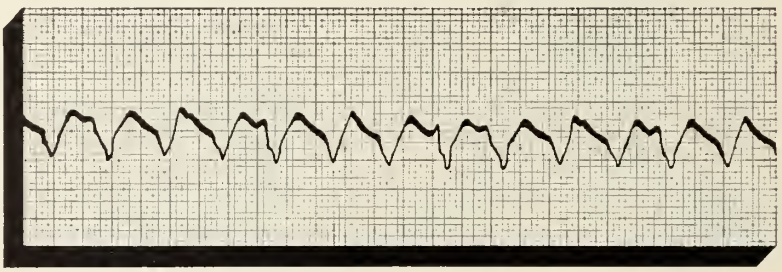
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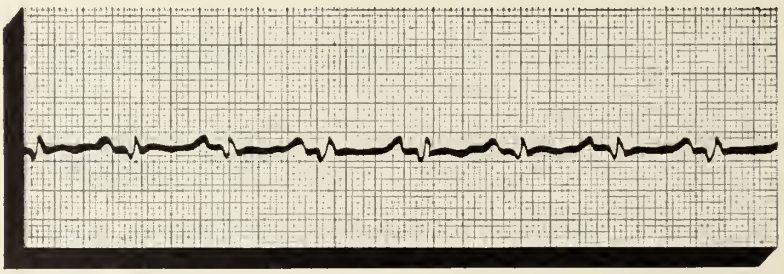
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BEFORE



Lead II. Ventricular tachycardia persisting after six days of oral quinidine therapy (8 Gm. per day).

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Lead II. Normal sinus rhythm after oral Pronestyl therapy.

Effective in some patients with ventricular tachycardia who failed to respond to quinidine

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Squibb Procaine Amide Hydrochloride

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new product brief

PRONESTYL *Hydrochloride*

Squibb Procaine Amide Hydrochloride

for the treatment of ventricular arrhythmias

What is it?

Pronestyl Hydrochloride is Squibb procaine amide hydrochloride. Structurally, Pronestyl differs from procaine only by the presence of the amide grouping (.CO.NH.) in Pronestyl where procaine has the ester grouping (.CO.O.)

How does it act?

The action of Pronestyl is probably due to a direct depressant action on the ventricular muscle. In auricular arrhythmias, preliminary observations indicate that Pronestyl slows auricular rate but usually does not re-establish normal sinus rhythm. At present, Pronestyl is not recommended in the treatment of auricular arrhythmias.

When is it indicated?

In conscious patients, for the treatment of ventricular arrhythmias.

During anesthesia, to correct cardiac arrhythmias.

What are its advantages in ventricular arrhythmias?

As compared with quinidine: Unlike quinidine, no important toxic symptoms have been reported following the use of Pronestyl orally. In therapeutic dosage, Pronestyl orally does not produce the nausea, vomiting, and diarrhea often caused by quinidine. At high oral dosage, these symptoms may appear

Whereas intravenous administration of quinidine is hazardous and unpredictable, Pronestyl may be given intravenously with relative safety.

Pronestyl has been found effective in some patients who failed to respond to quinidine.

As compared with procaine: For arrhythmias, procaine is used only in anesthetized patients because its dose in unanesthetized patients is too toxic for clinical use. Pronestyl can be used in conscious and anesthetized patients.

Intravenously, Pronestyl is much less toxic than procaine. In the recommended intravenous dosage, Pronestyl does not cause the central nervous system stimulation typical of procaine in conscious patients.

Procaine is unstable, being rapidly hydrolyzed in the plasma to para-aminobenzoic acid and diethylaminoethanol. Pronestyl is not affected by the plasma procaine esterase, consequently it is much longer acting than procaine.

Procaine is not used orally because of its instability in the organism; Pronestyl can be used orally and intravenously.

What are its side effects?

Oral administration of Pronestyl in doses of 3-6 grams per day, for periods of time varying from 2 days to 3 months, produced no toxic effects as evidenced by studies of the blood count, urine, liver function, blood pressure, and electrocardiogram. Intravenous administration to patients without ventricular tachycardia produced only a moderate and transient hypotensive effect in about one-third of the subjects. However, during intravenous administration to patients with ventricular tachycardia, a striking hypotensive effect was almost invariably present. This disappeared concurrently with the establishment of a normal rhythm. Further studies are in progress to see whether the drug may be given intravenously over a period of time longer than five minutes so as to revert the ventricular tachycardia without causing hypotension. That this may be possible is indicated by the fact that some episodes of ventricular tachycardia have been successfully treated by oral administration without significant change in blood pressure. Electrocardiographic changes: prolongation of QRS and QT intervals and occasional diminution in voltage of QRS and T waves have occurred.

What is the dosage?

IN CONSCIOUS PATIENTS

For the treatment of ventricular tachycardia:

ORALLY: 1 Gm. followed by 0.5-1.0 Gm. every four to six hours as indicated.

INTRAVENOUSLY: 200-1000 mg. (2 to 10 cc. Pronestyl Hydrochloride Solution). *Caution—administer no more than 200 mg. (2 cc.) per minute.*

Hypotension may occur during intravenous use in conscious patients. As a precautionary measure, administer at a rate no greater than 200 mg. (2 cc.) per minute to a total of no more than 1 Gm. Electrocardiographic tracings should be made during injection so that injection may be discontinued when tachycardia is interrupted. Blood pressure recordings should be made frequently during injection. If marked hypotension occurs, rate of injection should be slowed or stopped.

For the treatment of runs of ventricular extrasystoles:

ORALLY: 0.5 Gm. (2 capsules) every four to six hours as indicated.

IN ANESTHESIA

During anesthesia, to correct ventricular arrhythmias:

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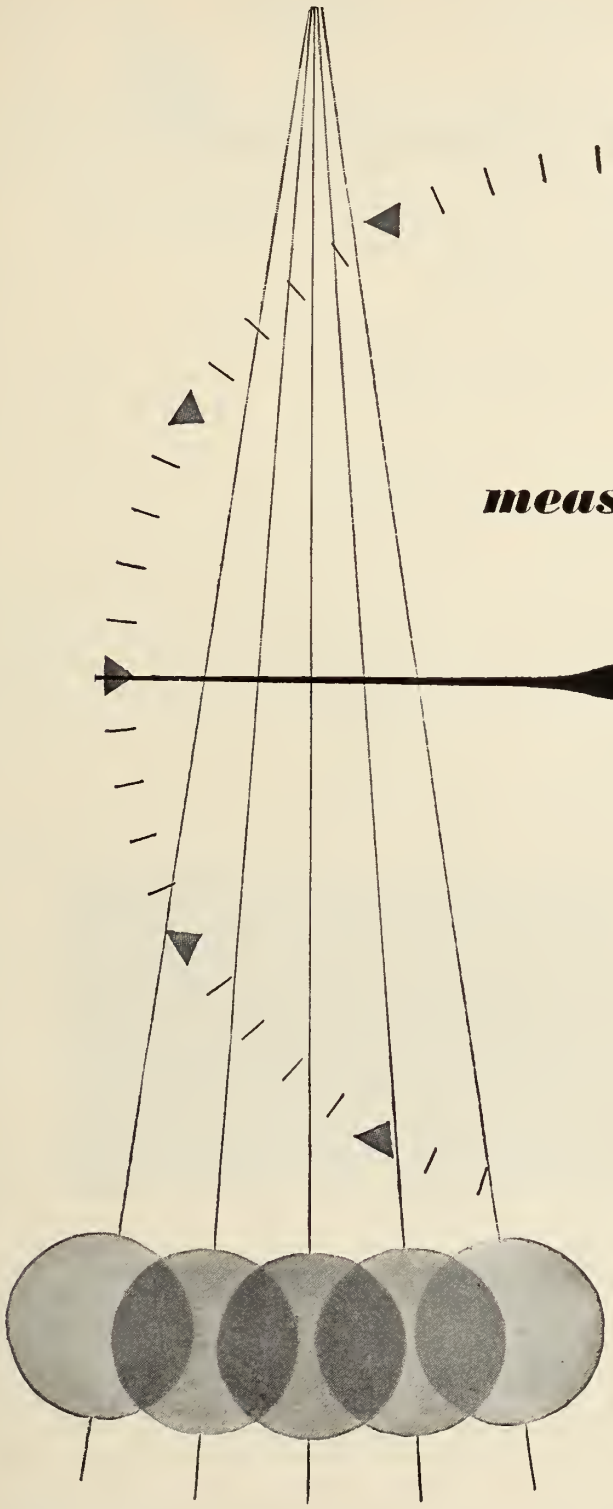
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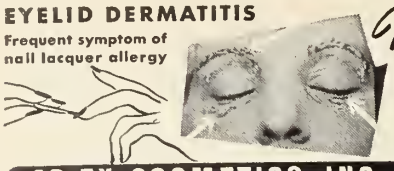
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OF THE

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Volume 47 OCTOBER, 1950 No. 10

Scientific Articles

RECENT ADVANCES IN TREATMENT OF CARDIOVASCULAR DISEASE

ARLIE R. BARNES, M.D.
ROCHESTER, MINNESOTA

ADVANCES IN the treatment of heart disease rarely can be ascribed to any one year. Rather they represent increments of knowledge accumulated over many years. While the treatment of cardiovascular disease is ever progressing, the efficacy of certain advances has been sufficiently well established to warrant mention of them in this summary.

CONGESTIVE HEART FAILURE

Restriction of Sodium.—Modern investigation teaches that in most cases of heart failure the cardiac output is reduced. It has been shown that the kidney is sensitive to a reduction in the general circulation and this reduction leads promptly to a retention of sodium by the kidneys and the tissues.[1] Therefore, it is important to restrict the intake of sodium of patients with congestive heart failure. It is desirable that the intake of sodium chloride be kept in the range of from 1.5 to 2.5 gm. daily. In practice this may be attained for short periods by keeping the patient on a diet of 1.5 liters of milk daily, supplemented with toast and fruit juice within their allowance of fluid. For a maintenance diet the desired limitation of sodium can be attained if salt is not used in cooking, if salt is not added to foods when served and if salted crackers, meats, fish, potato chips, cheese, broths, bouillon, pickles, relishes, gravies and salted butter are omitted from the diet. On this program unsalted bread is desirable but may be dispensed with if hot rolls and bread are eaten sparingly.

Liberal Intake of Fluid.—Schemm[2] advocated, among other things, a large intake of water in the treatment of congestive heart failure. Gorham and his associates[3] studied the diuretic effect of increasing intake of fluids. They found that diuresis was enhanced by increasing the intake of fluids up to three liters daily, but beyond that, additional amounts of fluid did not materially augment diuresis. These studies teach that the former practice of limiting sharply the intake of fluids of patients with heart failure was unwise and that they may be allowed to take as much fluid daily as they desire, up to three liters in twenty-four hours.

Digitalis.—Current investigations indicate that all the approved preparations of digitalis available are useful in the treatment of congestive heart failure. It is not so much the selection of a particular type of digitalis that is important, but rather that physicians become familiar with the effects of whatever preparation is chosen. The essence of wisdom in the use of digitalis is to avoid the production of toxic symptoms from its use and not to allow ourselves to think that with its administration one can neglect other, often more important, measures in the management of congestive heart failure.

Mercurial Diuretics.—The use of mercurial diuretics still is greatly neglected in the treatment of congestive heart failure. This probably grows out of fear of dangers from their use. Deaths resulting from their use have been reported, but, usually, they can be traced to the administration of doses that are too large and to their administration by the intravenous route. Both of these factors easily can be avoided, particularly since preparations are available which are suitable for injection intramuscularly or subcutaneously. Thiomerin, one of the newer of these preparations, has a low toxicity, is suitable for subcutaneous injection and, while the immediate diuresis is not as great as that produced by mercurial preparations combined with theophylline, yet its action is more prolonged.[4] The action of Thiomerin is enhanced by the prior administration of ammonium chloride leading to good diuresis with doses of from 0.5 to 0.75 cc. instead of the usual dose of 2 cc. For patients with congestive heart failure, when it is difficult to control edema, the use of mercurials may be of crucial importance. A useful guide to their administration is provided if the patient weighs himself daily and if mercurials are injected whenever there is a gain of from 2 to 4 pounds (0.9 to 1.8 kg.) in twenty-four to forty-eight hours.

Before leaving the subject of restriction of salt

Division of Medicine, Mayo Clinic, Rochester, Minnesota.
Presented at the Centennial Session of the Missouri State Medical Association; St. Louis, March 26 to 29, 1950.

and mercurial diuretics I must sound a word of caution. It must be borne in mind that many patients with heart failure have organic or functional renal impairment and, further, that Burch and Reaser[5] have shown that the sodium output in the urine may be increased seventy-five times as a result of administration of mercurial xanthine diuretics. Under these conditions and in the presence of rigid restriction of salt, a syndrome of renal failure may be encountered which is characterized by retention of water, dilution of electrolytes and excessive depletion of body salts.[6] This usually occurs secondary to the use of mercurial diuretics.

The syndrome[6] is signalized clinically by drowsiness, weakness, lethargy, loss of appetite, nausea and sometimes vomiting and, occasionally, by abdominal and muscle cramps. It is attended by successive depression of the urinary volume in the course of three to five days, a depression of urinary chlorides to negligible quantities, a rapid gain in weight, a progressively increasing azotemia, a fall in the levels of sodium and chlorides in the blood plasma and, occasionally, by a rise in the cardiac rate.

This situation must be recognized relatively early to avoid disaster. In its early stages the condition frequently can be reversed by the intravenous injection of a hypertonic solution of sodium chloride in an amount sufficient to restore the equilibrium of water and electrolytes.[6]

Recumbency.—It is well known that patients with congestive heart failure are made uncomfortable by recumbency. There is a well known physiologic reason for this. In recumbency an increasing amount of blood is returned to the right heart. This added amount of blood is passed on to a failing left ventricle, leading to increased pulmonary congestion and a corresponding aggravation of the dyspnea. One will do well, therefore, to permit these patients either to sit in a chair or have the head of the bed highly elevated until pulmonary congestion has been abolished. In general, insistence on a rigid restriction of the activity of patients with heart failure increases the hazard of pulmonary embolism.

Indeed the imposition of complete rest in bed on a human being jeopardizes his normal physiology in a variety of ways. Surgeons have taught that early ambulation after operation promotes wound healing, diminishes the need for narcotics, lessens the loss of weight and maintains muscular strength. Physicians will do well to remember the dictum of Asher[7] that "beneath the comfortable blanket there lurks a host of formidable dangers." He paints a pathetic picture of a patient lying long in bed in these words: "The blood clotting in his veins, the lime draining from his bones, the scybala stacking up in his colon, the flesh rotting from his seat, the urine leaking from his bladder and the spirit evaporating from his soul."

TREATMENT OF SUBACUTE BACTERIAL ENDOCARDITIS

As time goes on it becomes increasingly apparent that the earlier discovery of subacute bacterial endocarditis promises the best results from treatment. The condition should be suspected among patients with congenital or acquired valvular heart disease who exhibit unexplained fever, embolic phenomena and splenomegaly. Such patients should be treated with penicillin notwithstanding the fact that results of blood cultures are found to be negative. Experience in treating this disease has led to the use of doses of penicillin in increasing size. If the circulating blood is not sterilized promptly or if relapse occurs after the completion of the course of treatment, a drastic increase in the daily dose of penicillin is indicated. In the presence of organisms in the blood which are relatively insensitive to penicillin, daily doses of 20,000,000 units have yielded a cure.[8] It is generally agreed that treatment should be continued four or five weeks.

There have been several cases of subacute bacterial endocarditis in which the organism present was insensitive to penicillin and in such cases treatment with streptomycin alone or in conjunction with penicillin has been successful.[8-10]

Increasing attention is being given to the attempt to prevent the development of subacute bacterial endocarditis. It has been shown conclusively by several investigators that transient bacteremia may occur after dental extraction.[11] This also may occur after tonsillectomy and in association with surgical measures in which sepsis is a major probability. Consequently, in the presence of congenital or acquired valvular heart disease, 300,000 units of penicillin should be given twenty-four hours before the extraction of teeth or a tonsillectomy and similar daily doses should be continued for two days or longer.

TREATMENT AND PREVENTION OF RHEUMATIC FEVER

The cause of rheumatic fever is unknown. It is pretty well established that it occurs from one to three weeks after an infection of the throat or upper respiratory tract with beta hemolytic streptococci. If patients bearing such infections could be identified early, there is evidence to suggest that the administration of penicillin to eradicate this infection would forestall the subsequent development of acute rheumatic fever in a majority of instances. The administration of penicillin after the onset of rheumatic fever has been found to have no influence on the course of this disease.

Much evidence exists to indicate that measures for the prevention of recurrences of rheumatic fever are available.[12] Sulfanilamide was administered daily in a dose of from 0.5 to 1.0 gm. to large numbers of patients who had recovered from the active stage of rheumatic fever. Exacerbations of rheumatic fever occurred in 2.2 per cent of this group compared to 13.7 per cent of a control group of patients who did not receive sulfanilamide.

While toxic reactions on such a program were rare or mild, the program required rigid supervision. The gravity of the complication of agranulocytosis must not be minimized, but it is mitigated by the effectiveness of penicillin in the treatment of this condition. Symptoms suggesting its occur-

rence must be brought to the attention of the physician early. Hence the parents must be instructed to report at once such symptoms as sore throat, febrile reaction or unusual malaise. Biweekly examinations of the patient's urine and blood should be carried out the first four weeks of the daily administration of sulfonamides. Later monthly visits to the physician will probably suffice.

Of great interest and importance is a recent report on the oral use of penicillin as a prophylaxis of recurrences of rheumatic fever.[13] Children who previously had had rheumatic fever received 800,000 units of penicillin by mouth daily for seven consecutive days of the first week of each month throughout the school year. No recurrences of rheumatic fever occurred in this group contrasted with two untreated control groups in which the rates of recurrence were 11 and 19 per cent, respectively. This method of prophylaxis is certainly encouraging enough to warrant continued study.

Observations on the effect of the administration of cortisone and ACTH to patients with acute rheumatic fever demonstrate that these substances abolish, often in a spectacular manner, the acute manifestations of this disease.[14,15] Fever, pains in joints, increased heart rates, prolonged auriculoventricular conduction time, abnormal sedimentation rates and pericarditis are overcome quickly. Concomitantly, the patient quickly recovers his sense of well-being, appetite is restored and, usually, there is a prompt gain in weight. Whether this means that chronic heart disease or aggravation of already existent heart disease will be prevented thereby will have to await much longer observation of patients so treated. Certainly these effects are much more spectacular than those which have been obtained by any other method of treatment. Regardless of whether or not cortisone or ACTH fulfills the promise of an effective method of treating rheumatic fever, the dramatic response to their use opens up whole new concepts of mechanisms underlying the manifestations of the disease.

HYPERTENSION

Surgical Procedures in the Treatment of Hypertension.—This discussion will not concern itself with sympathectomy as the subject has had abundant reviews in medical literature and would require a longer discussion than can be allowed in this review. I wish rather to call your attention to less commonly recognized conditions in which operations may be useful.

Unilateral Renal Disease.—It has been demonstrated that the removal of a kidney which is the site of severe unilateral disease may result in reduction of the blood pressure of patients with hypertension.[16] This is particularly true if evidence of disease of the remaining kidney is excluded on careful laboratory studies. While the number of cases in which unilateral renal disease is an important factor in hypertension is small, yet the possibility should be borne in mind. Whenever evidence of renal disease coexists with hypertension, careful renal studies, including an intravenous urogram, are required to confirm or exclude the possibility of unilateral renal infection.

Coarctation of the Aorta.—If the patient is young, the presence of hypertension should lead to the exclusion of coarctation of the aorta. Palpation of the abdominal aorta should be a routine part of any examination. Absence of pulsation of the abdominal aorta and of the femoral arteries should lead to a determination of the blood pressure in the legs which is much lower than normal in the presence of coarctation of the aorta. Easily palpable pulsation—sometimes visible—of the arteries about the region of the scapulae practically establishes the diagnosis as does a roentgenogram of the thorax showing erosion of the ribs by the intercostal arteries. Operation for coarctation of the aorta if the patient is less than 30 years of age is highly successful in the hands of surgeons skilled in this procedure and the operation usually restores the blood pressure to normal.

Pheochromocytoma.—Pheochromocytoma, a tumor arising from the adrenal gland, may produce hypertension of the paroxysmal or persistent type.[17] A typical attack of paroxysmal hypertension consists of a sudden rise of blood pressure, tachycardia, sweating, great anxiety, severe headache with subsequent pallor of the face, numbness, tingling and coldness of the feet, sometimes nausea and vomiting and often epigastric pain extending into the precordial region. Tests of the reaction of the patient's blood pressure to drugs are required to diagnose the presence of pheochromocytoma. When pheochromocytoma is responsible for hypertension, histamine given intravenously in a dose of 0.025 mg. reproduces a typical attack. Tetra-ethyl-ammonium bromide administered intravenously in a dose of 100 mg. produces a sharp rise in blood pressure and two adrenolytic drugs, benzodioxane and dibenamine hydrochloride, when given intravenously, neutralize the excessive adrenalin circulating in the blood and produce a significant drop in blood pressure. These tests should be made with proper knowledge of some of their untoward effects. Discovery and removal of these adrenal tumors can provide a spectacular cure of hypertension.

When shall such tests be employed? Certainly when patients exhibit the clinical picture of paroxysmal hypertension just described. Likewise, there is considerable reason to carry out the test if patients with persistent hypertension are being considered for sympathectomy and for two reasons: First, if the presence of a pheochromocytoma is indicated by these tests, obviously exploration of the adrenals and not sympathectomy is indicated. Second, manipulations incident to sympathectomy in the region of an unsuspected pheochromocytoma may stimulate the release of excessive amounts of adrenalin and induce a fatal attack of paroxysmal hypertension during the operation.

Diet.—The publicity that has attended Kempner's use of the rice diet in the treatment of hypertension has reawakened intense interest in the role that

diet plays in the cause and treatment of this disease. There are many able scientists who doubt the premises on which Kempner[18] bases his hypothesis and there are many who prefer to think that the sodium restriction inherent in his diet is the real basis for the results obtained. The subject is interesting enough to approach in a broader sense.

During the war Keys and his associates[19] at the University of Minnesota subjected thirty-four apparently healthy young men to a starvation diet for several months. At the end of the starvation period the mean pulse rate was 37 and the average final basal metabolic rate was –39.9 per cent. There was a striking decrease in the systolic and diastolic blood pressures. When some of these men were placed on high caloric diets the blood pressure rose to slightly more than control levels. Congestive failure developed in one case and the frequent occurrence of tachycardia and dyspnea in the remainder of the cases suggested that the patients may have been on the verge of heart failure.

Now let me turn to observations on starvation in the populations of Europe during World War II.[19] After the Leningrad famine in 1941 to 1942 when the population returned to an adequate or near adequate diet, the rate of admission of patients to the hospital for hypertension in 1943 rose to a level five times as high as the prewar level in 1940. The incidence for hypertension proved at necropsy rose to 54.5 per cent in early 1944 as compared to from 1.2 to 5.2 per cent in 1941 and 1942. There was a similar increase in the severity of hypertension and in the incidence of associated cardiac insufficiency.

These observations suggest some relationship between diet and hypertension. Numerous studies are in progress in this field. A review of the results of a few of these studies seems worth while.

Schwartz[20] observed the effects of the rice diet on twelve dogs rendered hypertensive by the production of nephrosclerosis. On this diet the dogs lost an average of 19.7 per cent of their body weight. A substantial drop in blood pressure occurred in ten of eleven dogs which survived the experiment. He also placed six normotensive patients on the Kempner rice diet for eight days and found that all showed a negative nitrogen balance. The same was true for one hypertensive patient who was placed on this diet for ninety days. Schwartz concluded that although a low intake of salt deserves further study, starvation and, particularly loss of nitrogen produced by the diet, plays a significant role in the reduction of blood pressure.

Rosenberg and his associates[21] placed seven patients on a low sodium diet and four patients also received the rice diet. Of the seven patients, four showed a significant drop in blood pressure and three did not. Five patients with hypertension were placed on a rice diet only. Of these patients only three showed a significant drop in blood pressure, the pressure for one patient falling to normal levels. He observed that despite the fall of blood pressure of five patients, there was no associated relief of their symptoms.

Page and his associates[22] treated fifty hypertensive patients with low sodium diets. These diets were carefully controlled with the patients under observation in the hospital. Only 20 per cent of the patients exhibited a significant lowering of their blood pressures or subjective improvement. They agreed that a low protein diet is indicated for patients with hypertension who have renal failure with azotemia. When retention of sodium occurs in cases of hypertension associated with heart failure or when Cushing's disease is present, a low sodium diet is indicated. Obesity is an indication for a diet low in calories, a treatment that is frequently successful in lowering blood pressure.

I think one can accept the summary of Dr. Tinsley Harrison[23] concerning the general principles that should guide us in the management of hypertension in the present state of knowledge. He stated that aside from the correction of coarctation of the aorta, the removal of an adrenal medullary tumor and, I might add, the removal of a kidney which is the site of unilateral disease, the treatment of hypertension must consist of: (1) a program of regulation of the patient's life and the treatment of symptoms; (2) reduction of weight if the patient is obese; (3) use of low sodium and rice diets for a small group of patients with severe hypertension, though he adds that there is no magic virtue in rice, and (4) reduction of sympathetic vasoconstriction by sympathectomy or by the use of sympatholytic drugs.

ANTICOAGULANT THERAPY

It is axiomatic that blood must coagulate within normal limits; otherwise one would not long survive. However, as Allen[24] has observed, "It is timely to consider that blood may normally clot in blood vessels too well to serve the best interests of man. The protective device provided by nature is actually harmful as well as protective."

Postoperative Thromboembolism. — It is well known that pulmonary embolism occurs most commonly after operation. Indeed, of all the deaths occurring after surgical procedures at the Mayo Clinic from 1917 to 1927, 6 per cent were due to pulmonary embolism.[25] In 1937 I wrote, "An operation in which the patient has weathered all other hazards, a fracture that is healing satisfactorily, a puerperium in which all appears to go well, a thrombophlebitis in which the patient is well on the way to recovery or a minor sprain or bruise may be the setting for death from pulmonary embolism."[26] At that time I calculated that of the people then living more than 3,000,000 could be expected to die of pulmonary embolism.

Just a word should be said about the clinical recognition of pulmonary embolism. Ordinarily its occurrence is considered to be suggested by the sudden onset of severe dyspnea and cyanosis. However, it is important to bear in mind that more commonly its onset is signalized by shock of varying

degrees of severity. The symptoms encountered under these circumstances include a fall in blood pressure, a pronounced acceleration of the heart rate, the appearance of pallor, excessive sweating, great weakness, great apprehension and sometimes the occurrence of nausea and vomiting.

Allen and his associates[27] used Dicumarol as a prophylactic in 832 cases of abdominal hysterectomy. On the basis of a careful statistical study of patients on whom similar operations had been performed before the advent of anticoagulant therapy, it could be anticipated that venous thrombosis or pulmonary embolism would have occurred in thirty-three cases and fatal pulmonary embolism in six. Actually, only three patients had minor venous thrombosis and no patient died of pulmonary embolism among patients treated prophylactically with Dicumarol.

in which thromboembolic episodes are common are summarized in table 1.

Similarly, anticoagulant therapy has been found to have great usefulness in the treatment of coronary occlusion. In a cooperative and comprehensive study sponsored by the American Heart Association and summarized by Wright and his coworkers,[28] it has been shown that the addition of Dicumarol to the usual methods of treatment reduced the death rate approximately a third. Moreover, recognizable thromboembolic complications occurred in 41.8 per cent of the control group as contrasted to 13.1 per cent in the treated group. Thus the treatment reduced this complication by more than two thirds. This latter result deserves emphasis for even though a patient does not succumb to a thromboembolic complication, its occurrence may entail a prolongation of his illness or leave the patient with deplorable disability.

Table 1. *Results of Treatment of 288 Medical Patients With Dicumarol.*

Condition treated with dicumarol	Total patients treated	Subsequent fatal pulmonary embolism	Subsequent nonfatal pulmonary embolism	Subsequent venous thrombosis
Thrombophlebitis	138	0	2	4
Pulmonary embolism	44	0	1	0
Sudden arterial occlusion	45	0	0	0
Thrombo-angiitis obliterans	23	0	0	0
Arteriosclerosis obliterans	17	0	0	0
Miscellaneous*	21	0	0	0
Totals	288	0	3	4

* Includes patients who had chronic venous insufficiency, congestive heart failure, simple arterial thrombosis, cerebral thrombosis and other diseases.

They next studied the results of the use of anticoagulants in 352 cases of postoperative venous thrombosis. On the basis of previous experience, subsequent venous thrombosis or pulmonary embolism would be expected in eighty-eight cases and fatal pulmonary embolism in twenty. Actually, there were nine instead of the anticipated eighty-eight instances of venous thrombosis or pulmonary embolism and in four of the nine cases the administration of anticoagulants was considered to be inadequate. In contrast to the twenty instances of fatal pulmonary embolism which were anticipated, there were no deaths from this cause in this series of patients.

These same observers instituted anticoagulant therapy for 329 patients who had had pulmonary embolism. Instead of 144 instances of subsequent venous thrombosis or pulmonary embolism anticipated in these cases, this complication occurred but three times. Whereas fatal pulmonary embolism could be expected in sixty cases under these circumstances without anticoagulant therapy, only one patient died of this cause and death occurred after the patient's prothrombin time had returned to normal.

The results of anticoagulant treatment of 288 medical patients who had a variety of conditions

A word might be said about a method of giving Dicumarol. It is our custom[27] to give 200 mg. on the first and second days. On each subsequent day when prothrombin is more than 20 per cent, 200 mg. is given. On any day when the value is less than 20 per cent Dicumarol is withheld. We have found that intravascular thrombosis seldom occurs when the value for prothrombin is less than 30 per cent and that hemorrhage seldom occurs when the time for prothrombin is above 10 per cent.

It must be emphasized that the administration of Dicumarol must be gauged by the accurate daily determination of the time for prothrombin. This drug should be used cautiously or not at all in the presence of severe renal or hepatic disease, after operations on the brain or spinal cord, in blood dyscrasias in which there is a tendency toward bleeding or in the presence of ulcerative conditions. In case of hemorrhage, intravenous injections of vitamin K (menadione bisulfite) and transfusion of whole blood are indicated.

SURGICAL TREATMENT OF CONGENITAL CARDIOVASCULAR DISEASES

Brilliant advances have been made in the surgical correction of congenital defects of the heart and

the ligation or division of abnormal vessels persisting from fetal life.

It is not ordinarily difficult to recognize the existence of congenital anomalies of the heart and blood vessels. In most instances it is possible to diagnose the nature of the malformation with considerable accuracy on the basis of a careful history combined with ordinary clinical methods of examination. However, in some instances that is not possible. In such instances one can resort to cardiac catheterization to furnish an accurate diagnosis and to determine the advisability or feasibility of surgical measures.

Cardiac catheterization can furnish the following highly useful information:

1. Measurements of the pressures in the superior and inferior venae cavae, the right auricle, the right ventricle and the pulmonary arteries may be obtained. Pressures that are definitely higher in the right ventricle than in the pulmonary arteries are indicative of pulmonary stenosis. Pressures greater than normal in both the right ventricle and pulmonary arteries are indicative of pulmonary hypertension.

2. The oxygen saturation of the blood from all the structures entered may be determined. Thus an abnormally high oxygen saturation of the samples of blood obtained from the right auricle and the right ventricle would signify that arterial blood was passing from left to right through a defect in the auricular septum in the first instance and through a defect in the ventricular septum in the second.

3. If the catheter passes into a branch of a pulmonary artery and fits snugly, one may obtain a sample of blood having the oxygen saturation of arterial blood. If, under these circumstances, the oxygen saturation of a sample of blood obtained from a systemic artery were less than that obtained from a small branch of a pulmonary artery, it would be concluded that venous blood must be entering the arterial circulation.

4. If, in the case of a patient having the findings of tetralogy of Fallot, the catheter in the pulmonary artery revealed a pressure upward of 300 mm. of water, it would indicate that the anastomosis of the subclavian artery to a pulmonary artery would be unlikely to serve a useful purpose.

5. On the basis of the data collected the magnitude of shunts in the circulation can be calculated. By use of the Fick principle the volume of pulmonary blood flow can be calculated in hearts without congenital defects.

The usefulness of cardiac catheterization can be demonstrated by reviewing the data obtained in one case and by pointing out its bearing on diagnosis and on the advisability of operation.

REPORT OF CASE

A young girl, 17 years of age, had a loud to-and-fro murmur in the second and third interspaces to the left of the sternum. She was not cyanotic. The pulmonary conus was observed to be enlarged in the teleroentgenogram. There seemed much to point toward the diagnosis of patent ductus arteriosus. But there were three things that caused questioning that diagnosis. First, there was no thrill felt in the area of the murmur. Second, the pulse pressure was not abnormally large. Third, in the electrocardiogram from the right side of the precordium there was a change that suggested increased thickness of the right ventricle.

Table 2 *Cardiac Catheterization.*

Time	Location of catheter tip	Pressure, mg. Hg.	Oxygen content, volume per cent	Oxygen capacity, volume per cent	Saturation per cent
9:40	Right pulmonary vein	8/2	16.2	16.8	96.4
10:00	Left ventricle	109/7	16.6	17.3	97.1
10:03	Left atrium	7/2			99.8
10:15	Right ventricle	49/4	15.0	17.3	86.7
10:40	Right pulmonary artery	22/5	14.7	16.9	87.0
11:05	Right atrium	4/2	13.7	16.7	82.0
11:06	Superior vena cava	6/0	13.5	17.3	78.0
11:30	Radial artery	115/69	17.0	17.4	97.7

The following data were obtained on cardiac catheterization (table 2). At 10:00 o'clock the tip of the catheter was observed fluoroscopically to be in the left ventricle. This was confirmed by the systolic blood pressure of 109 mm. of mercury and by the oxygen saturation of 97.1 per cent. This established the existence of a defect in the interventricular septum. At 10:03 o'clock the catheter tip was observed to be located in the left atrium. This was confirmed by the blood pressure observed and by the oxygen saturation of 99.8 per cent. Thus it was established that there was a patent foramen ovale. The oxygen saturation in the right atrium was seen to be only slightly higher than that in the superior vena cava so that it could be concluded that the auricular septal defect was such that it permitted only a minimal passage of blood from the left to the right atrium. Further, it was noted that the systolic blood pressure in the right ventricle was distinctly higher that that in the pulmonary artery which indicated that there was some, though not a serious, degree of pulmonary stenosis.

These data then disproved the clinical suspicion of patent ductus arteriosus and established the diagnosis of mild pulmonary stenosis, patent interventricular

septum and a defect of the auricular septum without significant flow of blood from the left to the right auricle. The observations indicated clearly that cardiac surgical measures were not indicated for this patient.

Successful surgical procedures have been devised for correction of patent ductus arteriosus, of coarctation of the aorta, for the division of persistent right or left aortic arches, for the improvement of the pulmonary circulation in tetralogy of Fallot and for valvulotomy for pulmonary stenosis with an intact interventricular septum.

These surgical procedures have given and will continue to give thousands of patients a new lease on life.

CONCLUSION

It must be admitted that at present no solution is available for major diseases such as hypertension and arteriosclerosis. There is much room for optimism about the outlook in rheumatic fever. The prospect of its effective prophylaxis is more than a possibility. The results produced by the administration of cortisone and ACTH raise hope for an effective method of treatment. Further, these observations open a promising new approach to an understanding of the fundamental nature of the disease.

In any event, this review indicates that constantly improving methods of diagnosis and of medical and surgical treatment in a wide variety of diseases of the heart and circulation are at the command of the physician.

Mayo Clinic.

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RESPIRATOR "BREATHES" FOR POLIOMYELITIS VICTIMS

A respirator which enables victims of the bulbar type of poliomyelitis to breathe almost in a natural manner has been developed by a group of Boston doctors.

In contrast to older forms of artificial respiration by means of pressure, the new respirator operates through electrical stimulation of a point on either of the phrenic nerves, which run down each side of the neck into the diaphragm.

Drs. Stanley J. Sarnoff, James V. Maloney, Jr., Benjamin G. Ferris, Jr., and James L. Whittenberger, and Charlotte Sarnoff, all of the Harvard School of Public Health, describe the use of the respirator in the August 19 *Journal of the American Medical Association.*

Acute bulbar poliomyelitis is the form of the disease in which the enlarged upper part of the spinal cord, popularly called the "bulb," is affected. Since this area contains vital centers that control respiration and the heart, involvement can be severe enough to interfere with breathing. It has become general practice not to place a patient so affected in a tank respirator, since this may increase the respiratory difficulty, the doctors say.

"Supportive therapy, with painstaking attention to maintaining an unobstructed airway, has remained the cardinal principle in the management of this form of the disease," doctors point out. "Phrenic stimulation has not been used previously in bulbar poliomyelitis.

"Respiration was produced by applying a moistened, cloth-covered electrode externally over the skin at the site of the motor point of the phrenic nerve."

PROLONGED LABOR

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A LABOR THAT is prolonged beyond the average duration of parturition may devolve hazards that are totally out of proportion to the apparent difficulty which besets the patient. Not the least of the

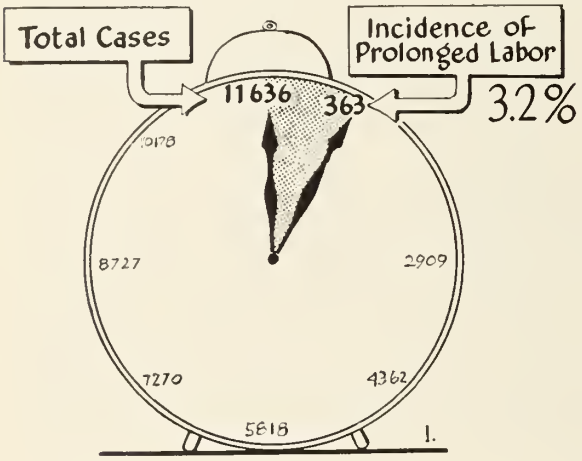


Fig. 1.

trials facing the accoucheur in these cases is the demand made upon him by the patient and the patient's family to initiate some procedure to speed delivery or, perhaps, by cesarean section to relieve the mental and physical anguish of a terrified parturient. With the more liberalized indications for cesarean section coming into vogue today, it is possible that an injudicious increase in operative incidence might be substituted for sound obstetric judgment with consequent unfortunate results. To those charged with the responsibility of teaching the principles of obstetrics to the young physician, a challenge is posed to produce a concept of management which will enable the attendant to face, with confidence, the long hours of tribulation which prolonged labor entails.

We believe that the initial approach to the problem should be the recognition of prolonged labor, with its associated increase in maternal and fetal mortality and morbidity, as a clinical entity and, as such, to be entitled to intelligent and specific consideration. Only casual reference to the literature should enable one to do this. O'Dell,[1] Calkins,[2] Murphy[3] and others, as well as our own previous reports,[4-5] demonstrate an incidence of 2.7 to 4 per cent. Geittman[6] has shown it to be the most frequent complication of the elderly primipara. The maternal morbidity in most reports ranges between 9 and 15 per cent and the average fetal mortality is near 9 per cent.

The principal concept of the problem persistently brings to light two essential types of prolonged labor. The one type is a prolongation of a normal labor beyond the accepted arbitrary time limits; the second is one in which the prolongation of the labor forms a part of the clinical picture of some obstetric complication. Inasmuch as both kinds reflect a physiologic derangement of the uterine muscle with reduction in the quality of contractions, two general classifications may be made; namely, primary and secondary inertia.[1,7,8] Clinical observation has demonstrated that vaginal delivery is the rule, and the vast majority fall in the classification of primary inertia. It would follow, therefore, that after obstructed labor has been excluded, the conduct of the prolonged labor case should be concerned with the support and protection of the parturient. This is the basis upon which the prolonged labor service was developed at Lewis Memorial Maternity Hospital in 1942.

MATERIAL STUDIED

In the period between July 1, 1942, and January 1, 1950, there were 11,646 patients delivered at Lewis Memorial Maternity Hospital, the obstetric teaching institution of the Stritch School of Medicine, Loyola University. Prolonged labor occurred in 363 instances; an incidence of 3.2 per cent (fig. 1). The economic and environmental status of the patients varied from fair to poor. Negro patients form a minority of the patients served. These patients are delivered by the resident staff under the supervision and with the assistance of the attending staff as the occasion demands.

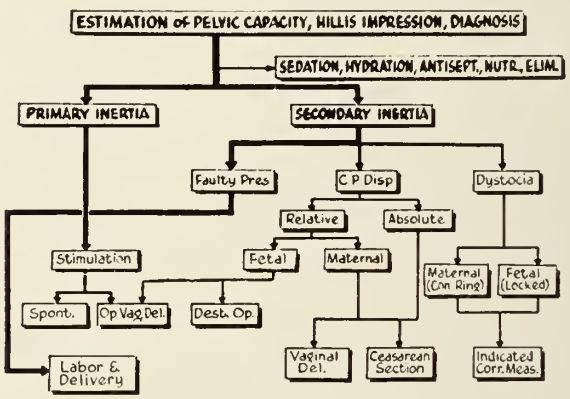


Fig 2.

MANAGEMENT

In our clinic twenty-four hours has been selected as the demarcation of the upper limit of normal labor. We are aware that this is at variance with other reported studies,[1,9,10] but defend our decision by pointing out that acidosis, demonstrated by acetonuria, occurs as early as ten to twelve hours

From Lewis Memorial Maternity Hospital and Stritch School of Medicine, Loyola University.
Read before the Centennial Meeting of the Missouri State Medical Association, St. Louis, March 28, 1950.

after the beginning of labor and that higher time limits of normal labor cause an unwarranted delay in instituting routine management. We also are aware that a thirty, forty or fifty hour duration does not mean thirty, forty or fifty hours of uterine contractions and hence not actual labor, but we feel that elapsed time before delivery is an important thing to the patient psychologically and, therefore, consider labor to begin with the onset of uterine contractions which result in effacement and dilatation of the cervix.

The proper conduct of any labor entails such critical observation of the patient as to enable the attendant to anticipate the development of complications. In our experience, the potential prolonged labor case can be recognized by the character and progress of the early stages of labor. Thus warned in advance, preliminary measures to support and sustain the patient are undertaken in order that the parturient may enter the prolonged phase of labor without having brought herself to exhaustion because of a dilatory attitude on the part of the physician. When the patient finally does enter the status of prolonged labor, we feel that she merits special and detailed consideration; and to accomplish this the patient is transferred from the routine conduct of labor to a special prolonged labor service where automatically she begins to receive the benefits of a program designed to cope with her problem.

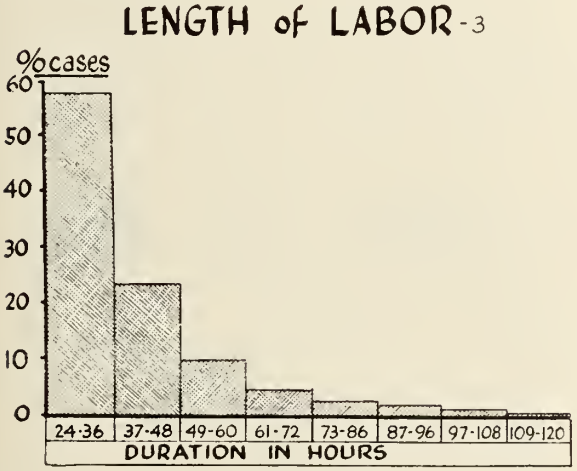


Fig. 3.

Of prime importance is the careful evaluation of the patient in order to classify the type of prolonged labor and rule out obstructed labor before initiating specific measures. A general exclusion scheme is shown in figure 2, which enables the evaluation of the patient to proceed to a logical conclusion. Determination of position and presentation, engagement, dilatation, integrity of membranes and pelvic mensuration are accomplished by painstaking study supplemented by x-ray and sterile vaginal examination. A review of the character of the labor in the preceding twenty-four hours is then made and, with the resulting data, the case is assigned its place in the scheme and the course of treatment outlined.

The general measures instituted in all cases in which vaginal delivery is expected concern five basic principles: viz., sedation, hydration, antisepsis, nutrition and elimination. For teaching purposes, we have often made use of mnemonics and call this the "shane" principle of treatment. Sedation is afforded by the use of Demerol or morphine in sufficient amounts to secure complete rest for eight hours in twenty-four. Hydration is maintained by oral or parenteral route to keep the urine acetone-free. The intake and output are measured and

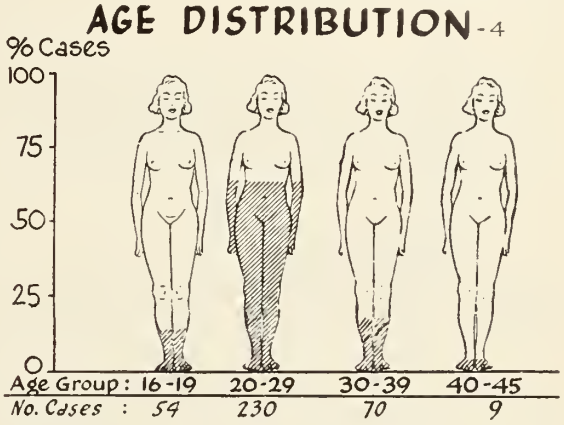


Fig. 4.

charted. Antisepsis is provided by routine antibiotics, careful nursing hygiene and minimal examinations and handling of the patient. Nutrition is maintained at a level of 2,000 calories, supplementing oral feeding with intravenous glucose if necessary. Adequate elimination to avoid distention and trauma to the bladder and rectum is considered essential.

The subsequent management of the case is the same whether the inertia is primary or secondary as long as vaginal delivery is anticipated. In those cases requiring it, stimulation of the uterus is always reserved until after a period of rest. All patients routinely receive calcium gluconate to enhance the efficiency of the myoneural junction[11] and thiamin chloride (60 mg. per twelve hours) to enhance phosphorus metabolism and associated CHO synthesis and glycogen reserve. Stimulation, when required, is accomplished by castor oil, enemata, ambulation and, in some instances, posterior pituitary solution in extreme dilution by infusion. This latter procedure is done only under the continuous supervision of the resident staff in order to avoid excessive uterine stimulation.[12,13] In brief, the technic is as follows: in the absence of obstructed labor or cephalopelvic disproportion, two one liter flasks of isotonic solution are adapted to a single intravenous infusion tubing. In the one flask from 0.5 to 1.0 cc. of posterior pituitary extract is injected; the other flask is closed off. The greatly diluted pituitrin is then permitted to run through the tubing at a rate of from 30 to 40 drops

per minute. As soon as the effect of the oxytocic is manifested by uterine contractions, occurring at 5 to 8 minute intervals, the stimulating solution is closed off and the untreated solution is permitted to run through the tubing at the same rate. If the uterine activity falters, the stimulation can be resumed as before by simply adjusting the stopcocks.

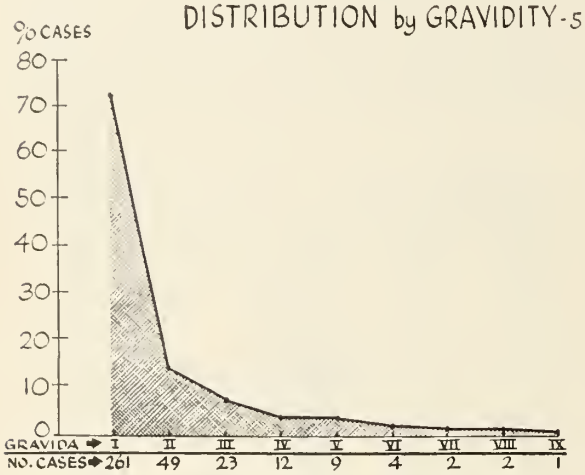


Fig. 5.

Tumultuous uterine contractions or uterine tetany may be brought under control by the administration of ether by open mask. The ether is always kept at hand by the attendant observing the patient.

We consider the management of delivery and the third stage of labor in these cases of extreme impor-

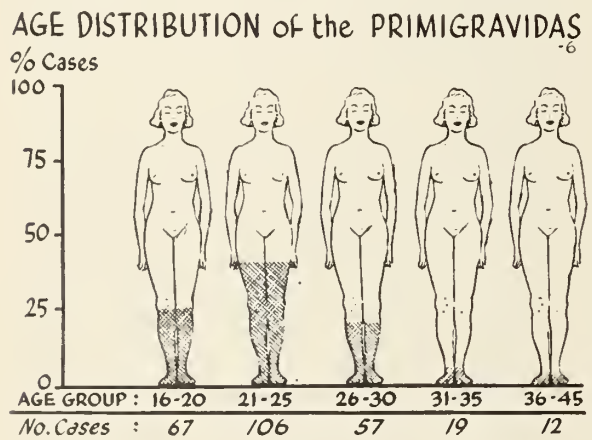


Fig. 6.

tance. Uterine exhaustion and postpartum hemorrhage go hand in hand. We, therefore, establish a venoclysis, have the patient typed and cross matched and have plasma available in all prolonged labor cases prior to delivery. Strictest asepsis is practiced during delivery as well as conservation of the pelvic floor by judicious episiotomy. Minimal fetal trauma is sought, and the delivered infant is observed with extra care during the first twenty-four hours.

RESULTS

The statistical tabulation of our results brings to light several basic concepts of the problem. They serve to strengthen our contention that not only is the patient best served by conservative management, but conservatism is indicated by the available facts.

Figure 3, for example, demonstrates that the bulk of cases terminated in thirty-six and forty-eight hours accomplishes delivery in more than 75 per cent of the cases. Patience and reassurance are the keynotes in the question of elapsed time. Reasonable explanation, in simple terms, as to what is taking place and what is being done will serve in most instances to allay the fears of the patient and her family. We often explain that we are forcing time to serve our own ends, and that the expended hours are actually benefitting the patient instead of harming her.

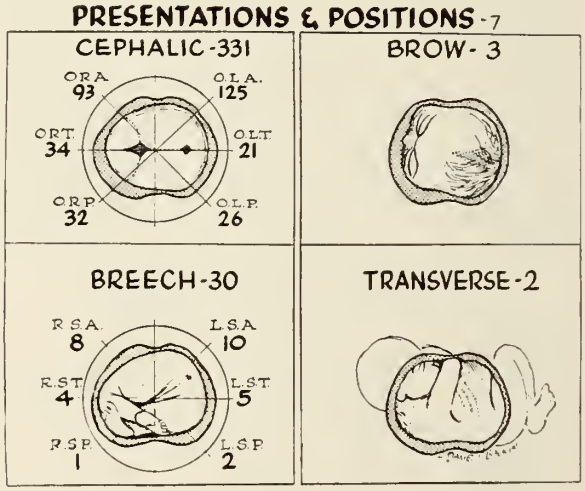


Fig. 7.

Figure 4 shows the age incidence to be primarily that of the optimum obstetric age. We can assume reasonably then that the bulk of the patients possess the best physical condition and stamina and are physically capable of undergoing the rigors of prolonged labor.

Figure 5 shows that almost 75 per cent of the cases are primigravida. The next largest percentage is only 13.7 per cent. This, of course, is merely a statistical confirmation of a clinical impression that has been held generally.

Figure 6 shows that the age incidence in the large primigravida group follows the general age distribution irrespective of parity. While prolonged labor is accepted as a common complication of elderly primigravida, nevertheless, elderly primigravida do not make up the bulk of prolonged labor cases. The implication is that any primigravida is a potential prolonged labor candidate, and she should be observed for any such indication.

Figure 7 demonstrates that prolonged labor is not caused necessarily by malposition of the fetus, since 218 cases presented an occiput anterior posi-

tion. However, there were thirty cases of breech presentation, an incidence in prolonged labor of 8.1 per cent. The overall incidence of breech presentation in a fifteen year period at our institution is 3.4 per cent. This would imply that breech presantation is attended by prolonged labor to a greater extent than any other presentation.

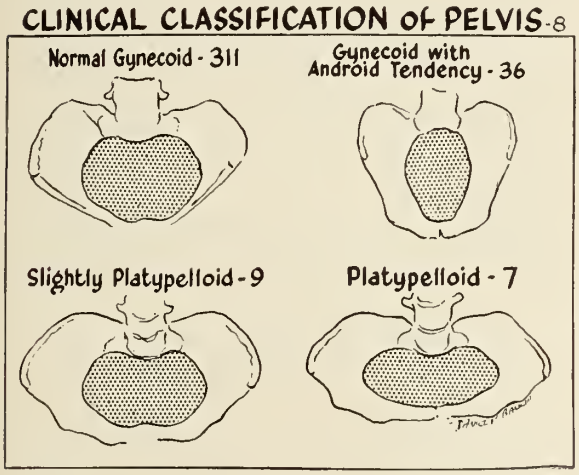


Fig. 8.

It is worth noting in figure 8 that normal pelvic configuration is the rule and anomalies of the passages are not of major importance in the production of prolonged labor. This is again a statistical fact which helps to make a favorable prognosis.

We believe the information depicted in figure 9 to be of extreme importance. Fifty per cent of the

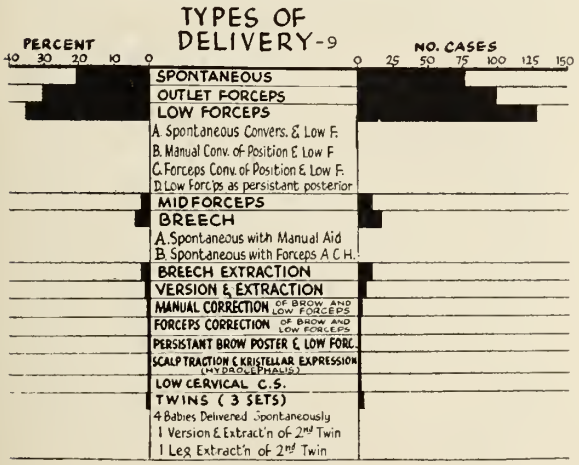


Fig. 9.

cases were delivered with no, or minimal, interference. Another 35 per cent were delivered by low forceps with or without rotation. In only 15 per cent of cases did these women require procedures of any involved technical ability. Only one case required casarean section, an incidence of 0.27 per cent. This patient was an elderly primigravida with sterility of ten years' standing, who was subjected to a trial of labor after rupture of membranes. We feel it is significant that the incidence of cesarean section at Lewis Memorial Maternity Hospital is one of the lowest. The average incidence in the

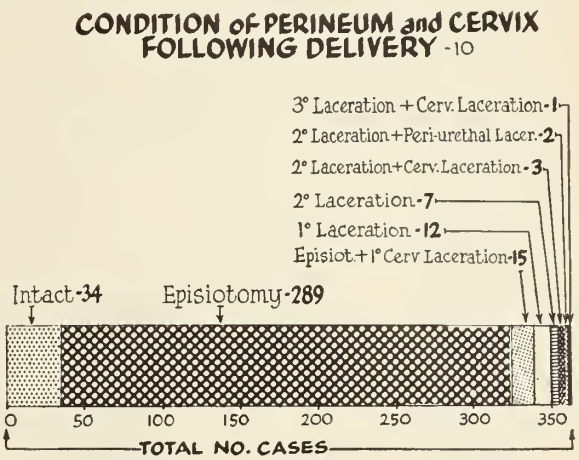


Fig. 10.

period covered by this report is 2.11 per cent, which figure includes all repeat sections. In other words, we are not avoiding prolonged labor by doing elective cesarean section in anticipation of trouble. That more of our prolonged labors do not come to cesarean section demonstrates the success of the careful evaluation of the patient in the early stages of labor, thus obviating the need for utilizing cesarean section to overcome a bad situation.

The conservative management is also reflected in figure 10, which shows the cervix and perineum suffer comparatively little damage.

Table 1. *Complications of Labor and Delivery.*

	No. of Cases
Primary Uterine Inertia	100
Maternal Exhaustion (secondary uterine inertia)	62
Deep Transverse Arrest of the Head	40
Postpartum Hemorrhage	27
Postpartum Hemorrhage and Shock	4
Persistant Occipit Posterior	21
Intrapartum Infection	9
Retained Placenta	7
Intrapartum of Fetus (see fealt mortality)	6
Fetal Distress	4
No FHT at Onset of Labor	4
Contraction Ring	3
Intrapartum Hemorrhage	3
Vaginal Bleeding (due to low lying placenta or placenta previa marg.)	3
Prolapsed Cord	3
Prolapsed Cord—Transverse Lie	1
Shoulder Dystocia	2
Chill Immediately Postpartum	1
Epileptic Seizures During Labor	1
Postpartum Shock	1
Abruptio Placenta	1
Incarcerated Anterio Lip of Cervix	1
Hydrocephalus with Intrapartum Ventricular Puncture	1
Anesthesia Shock with Apnea	1
Spontaneous Pneumothorax	1

Table 1 shows the complications of labor and delivery. Postpartum hemorrhage occurs in more than 8 per cent of cases. It is this complication that we dread the most. The uterus, which has been at fault throughout the first and second stages, cannot be expected to react normally in the third stage of labor. Likewise, an exhausted uterus lacks the

tone to bring about vascular occlusion. Inadvertent relaxation of the uterus may occur at any appreciable interval following delivery to produce either an insidious, steady loss of blood or a dramatic and terrifying hemorrhage after the patient has left the birth room.

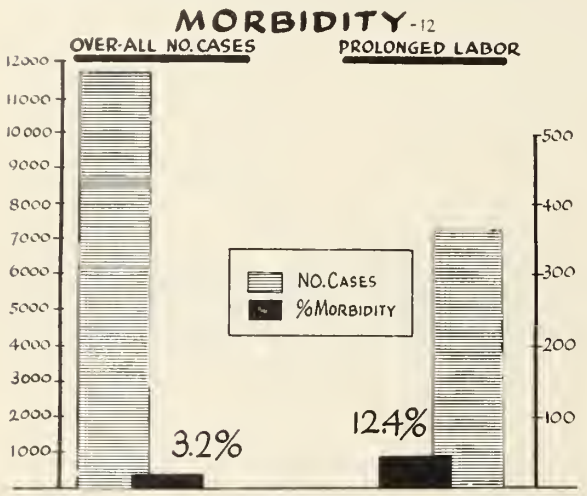


Figure 11.

The over all morbidity in 11,646 cases was 3.2 per cent; the morbidity as shown in figure 11 was 12.4 per cent. More than one half of the morbid cases involved the uterus, as in endometritis, and the urinary system. The other morbidities ranged from mastitis and infected episiotomies to an abscessed tooth with cellulitis. This latter and two

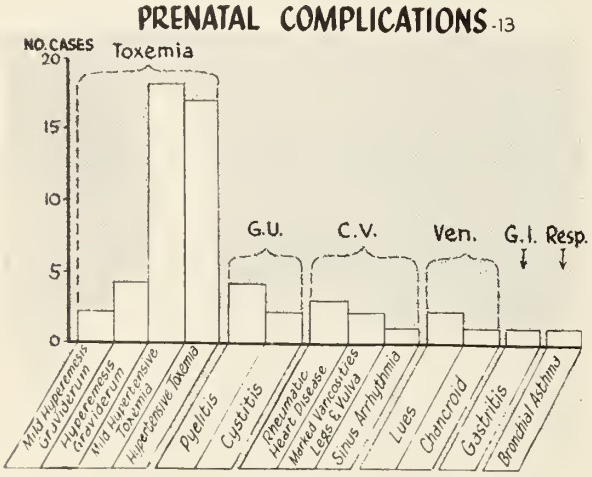


Figure 12.

upper respiratory infections might conceivably be eliminated as resulting from parturition. Even so, the corrected morbidity figure would be 10.8 per cent, a definite increase above the average overall figure.

The prenatal complications are shown in figure 12.

Figure 13 demonstrates the toll exacted upon the infant. The fetal mortality in prolonged labor is double that of the average overall mortality. The vast majority of infants suffer intrapartum deaths. There were no maternal mortalities in our series.

DISCUSSION

The reported incidence of prolonged labor in the literature is quite constant, ranging between 2.7 and 4 per cent. In searching for etiologic factors, we return again and again to the problem of abnormal uterine muscle physiology. Position, presentation, type of pelvis or prenatal complications apparently do not contribute in any degree to causing prolonged labor. The only consistent clinical observation is the preponderance of young primigravida.

The prolongation of the labors invariably is in the first stage and is the result of faulty and ineffectual contractions. A lack of coordination be-

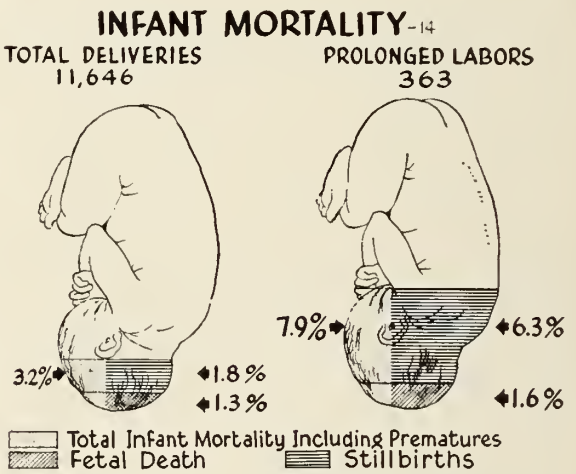


Figure 13.

tween muscular and nervous elements would well fit this condition.

Cosgrove[14] and more recently Donnelly[15] have confirmed our impression that many of the operative procedures, such as Voorhees bags, stripping of membranes and Duhrssens incisions are of limited value and are definitely dangerous. We have had no instance in which Duhrssens incisions were required. Williams[16] in 1943 showed the danger of cesarean section in cases of prolonged labor in his analysis of 206 deaths in prolonged labor. We feel that our efforts to protect the parturient patient throughout the labor have borne fruit.

CONCLUSIONS

1. Prolonged labor is a definite clinical entity carrying a consistent rate of incidence.
2. Prolongation of labor is primarily due to abnormal uterine physiology.
3. Fetal mortality and maternal morbidity are increased in prolonged labor.
4. Intelligent and specific management are demanded to bring about favorable results.

5. A concept of management (shane) of these cases is presented.

25 E. Washington Street.

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SCHIZOPHRENIA ATTRIBUTED TO OVERWHELMING FRUSTRATION

The view that schizophrenia, one of the major mental illnesses, is produced by overwhelmingly frustrating situations in life was advanced today by Dr. Richard L. Jenkins, chief of the research section of the Veterans Administration Psychiatry and Neurology Division, Washington, D. C.

Dr. Jenkins also outlined an approach to more effective treatment of the condition which fills roughly a quarter of all hospital beds in the nation.

"There is widespread evidence that the schizophrenic person is one who has passed his threshold of tolerance for frustration and has as a result begun to react in nonadaptable ways," Dr. Jenkins said in the August *Archives of Neurology and Psychiatry.*

"Schizophrenic patients as a group have experienced relatively little success in school," he pointed out. "Poor performance in school with attendant frustration is only one piece in a broad mosaic of poor performance and frustration in the early background of schizophrenic patients. We see one avenue of satisfaction after another closed by personal sensitiveness, crippling experiences and memories. They fail to achieve satisfaction either in their more personal-familial relations, or later in their broader group, school, social or sexual adjustment.

"The trait of seclusiveness, the 'shut-in' personality and related behavior as a precursor of schizophrenia has been widely remarked.

"Stereotyped unadaptive behavior, resulting from continued frustration, has been demonstrated in animals and is demonstrably reversible. Schizophrenia is not a disease with a specific organ abnormality or a specific causal agent. It is a special type of maladaptation commonly showing a tendency to be progressive.

"With this hypothesis, the objective of therapy is easily defined. It is to reverse the maladaptive process. It is to relieve frustration and simplify the situation to a point where the patient can achieve success and satisfaction in his efforts and replace 'frustration behavior' with flexible adaptation to the realities of his environment.

A TUBERCULOSIS SURVEY IN A GENERAL HOSPITAL

S. A. LEVEY, M.D.
ST. LOUIS

IN THE LAST FEW years much has been written and said concerning the lack of supervision regarding tuberculous patients in general hospitals. Several national tuberculosis associations or societies have attempted small scale surveys in picked institutions and, in some instances, have reported startling percentages of previously unrecognized tuberculosis among the general patients.

At the Christian Hospital it was thought advisable to attempt checking all incoming patients as a routine procedure. Accordingly, chest films were made, as far as possible, on all incoming patients. Emergency dressing cases, and those whose stay would be short, were excepted. Patients who had had a chest examination recently also were excepted. Some few patients objected to this procedure, but in general little difficulty was experienced. Since the knowledge gained from a 14 by 17 film is more complete and probably exceeds that gained from smaller sizes, the large film was made on all patients.

Table 1.

Tuberculous Pathology	No.	Per Cent
Active	8	.22
Chronic or fibrotic	99	2.75
Calcified Nodes	66	1.83
Cancer		
Primary	1	.027
Metastatic	5	.135
Pneumonias	27	.73
Pleuritic adhesions	59	1.64
Effusions	20	.54
Pneumoconiosis	1	.027
Cardiac Pathology	71	1.97
		9.869%
Prominent pulmonary conus	52	1.4
Negatives	3181	
Total	3600	

During a period of about two years, 3,600 patients were examined in this way. It was thought advisable to record observations of chest pathologic conditions according to a chart (table 1). From this chart, further and more minute observations could be made later. This would give an idea of the amount of chest pathologic conditions present in routine hospital cases in this hospital. It must be borne in mind that patients on chest or medical services, whose admission was due to pulmonary conditions, were excluded from this survey and only patients whose hospitalization period was more than forty-eight hours were considered.

Explanation of the purpose of this work was usually sufficient to gain the patient's consent. Especially was this true after a preliminary explanation by the patient's physician. One patient's refusal was dramatically tragic in its outcome. The patient refused a chest film when her baby was

delivered. About four months later, the baby developed a tuberculous meningitis. A check of both parents showed both with far advanced pulmonary tuberculosis with cavitation.

In explanation of the chart, active tuberculosis was diagnosed only in those cases who showed cavitation or other clearly defined tuberculous condition with or without effusion. All doubtful activity was tabulated after thorough clinical checkup. Many diagnoses were not made until after clinical verification. Some lesions were small and diagnosis was not made until after repeat films, at intervals, were studied carefully. In all cases the diagnosis was a composite of clinical and x-ray conclusions.

Only eight cases of active tuberculosis were found. This is 0.22 per cent and is extremely low. All types of tuberculous pathologic conditions comprised only 4.8 per cent of the entire series. This percentage is not alarming. The small number of active tuberculosis cases was thought too few to differentiate into minimal, moderately advanced and far advanced types.

Fibrotic or Chronic.—In this group were included all cases which were considered to be the result of previous tuberculous etiology, showing no x-ray or other evidence of recent disturbance or origin, peribronchial or parenchymal fibroses with or without calcification. Thick pleura, or adhesions, or both, were common findings. Fibrous rings, suggesting old cavity, were not frequent.

Calcified Nodes.—In this group were: (1) those whose films showed calcified nodes more than 5 mm. in diameter, (2) calcified hilar parenchymal or peribronchial nodes more than 3 mm. in size in cases in which the number of such nodes was considered sufficient to warrant pathologic rating, (3) diffuse miliary type of nodules, regardless of size, (4) large single or multiple nodes in the parenchyma of the lung, so called Ghon nodes.

It must be remembered that in the light of recent medical research, there is a possibility that some cases previously considered as calcified miliary tuberculous nodes may be due to calcified nodes from an old histoplasmosis. At this time, differential diagnosis from x-ray films does not appear possible.

One case of primary lung carcinoma was found. This was referred for surgical care. Five cases of metastatic lung invasion were noted. In four of these, the metastatic invasion appeared to follow the blood vessel supply (blood borne distribution) while in one, the distribution followed the lymphatic channels. X-ray therapy was palliative. One case showed destructive involvement of the ribs.

Pneumonias.—Twenty-seven cases of pneumonia were noted. Most of these were early. The lobar type usually showed density in the central part of the lobe. This type is not easily diagnosed by physical means since the normal lung which overlies the congested area can give normal sounds to percussion and auscultation. Bronchial and virus pneumonias were not included in this survey. It must be noted that many patients were examined preliminary to abdominal surgery. The value of this examination has long been proved and accepted.

Pleurisy.—Pleurisy cases were quite numerous, with fifty-nine cases. The distribution was general and showed no significant locus.

Effusions.—Twenty cases of effusion were noted. Nearly all of these effusions were small and located in the costophrenic angles. Most absorbed without surgical intervention. Thick diaphragmatic pleura was a common sequel.

Heart.—A relatively large number of patients showed some cardiac deformity (seventy-one). In this group were considered all hypertrophies or deformities of cardiac size and contour, dilated or malformed aorta and displacements. Prominent pulmonary conus was present in a large number (fifty-two). It was more common in the younger groups, below 30 years of age, and in females. The value of knowledge of cardiac deformity, whether of congenital or acquired origin, is unquestionably important. In speaking of pulmonary conus, one must be aware of the fact that the base of the pulmonary artery, arising from the right auricle, is rarely visible in the usual anterior-posterior chest film. The returning blood vessel, entering the left auricle (pulmonary vein), and associated with prominence or lateral extension of the wall of the left auricle, produces the "prominent pulmonary conus" as used in this series.

Pneumoconiosis.—One case was found. This was referred to chest service.

A total of 9.86 per cent of pathologic changes was found. It must be considered that this was among patients who were unaware of the presence of such disease.

CONCLUSION

In routine chest examinations of patients entering a general hospital, 3,600 cases showed a total of almost 10 per cent with chest pathologic conditions, with a low percentage of active tuberculosis (0.22 per cent). This is far below the percentages sometimes quoted for similar surveys. It is believed that the fine publicity among lay and professional people has created an awareness of the tuberculosis problem and has resulted in a material reduction in the number of patients who live with this disease for some time before accepting medical care. The multiplicity of pathologic conditions in the chest, which were found during the course of this survey, is by no means alarming. However, it calls attention to the ease with which many serious pathologic entities may be overlooked because of an acute or predominant ailment which projects itself into the immediate diagnostic picture.

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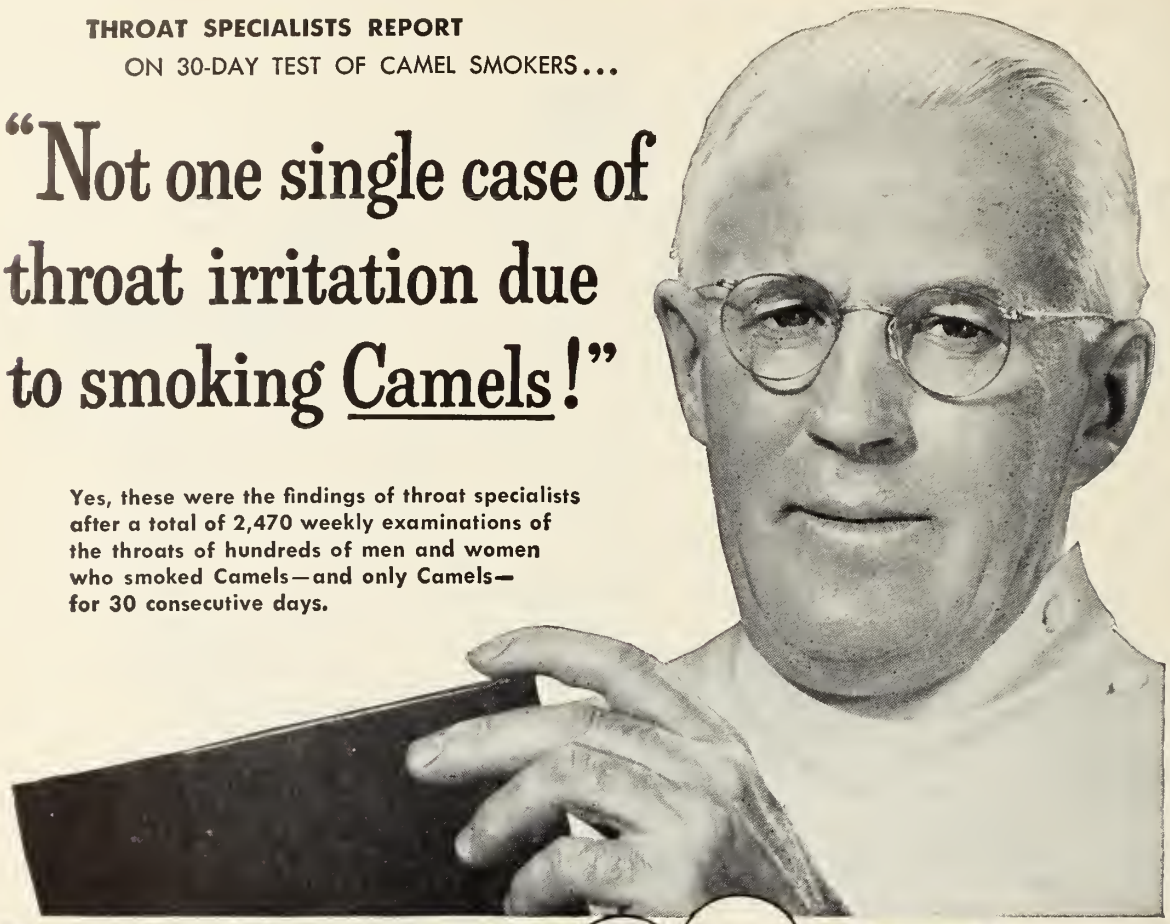
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Postgraduate Review

A NEW CONCEPT OF THE CLOTTING OF BLOOD AND THE HEMORRHAGIC DISEASES

ARMAND J. QUICK, M.D.
MILWAUKEE, WISCONSIN

PETIT[1] IN 1731 was perhaps the first to propose that the clotting of blood served as a means whereby the body effected hemostasis. He named the clot which he observed within the vessel as a bouchon (cork) and that outside of the vessel as a couvercle (cover). The mechanical concept of hemostasis which Petit introduced was accepted so completely that an alternative explanation was hardly considered possible. Subsequent workers, therefore, have been concerned mainly with the chemistry rather than with the physiology of blood clotting.

As the result of the pioneer contributions of Hewson, Buchanan, Hammarsten, Bizzozero, Hayem, Peckelharing, Schmidt Arthus and Pages, as well as of other workers, it was possible for Morawitz and Fuld and Spiro in 1904 to formulate a hypothesis of coagulation which generally is designated as the classical theory. It is expressed by the well-known equations:

Prothrombin + thrombokinase (thromboplastin) + Ca^{++} = thrombin.

Fibrinogen + thrombin = fibrin.

Strangely enough, it took three decades for the theory to come to fruition. It paved the way for the renaissance in coagulation which began shortly after 1934. The discovery of vitamin K during that year focussed clinical attention on the hemorrhagic diseases as no therapeutic contribution in this field had done before. Yet, while it eradicated two baffling bleeding diseases, the hemorrhagic disease of the newborn and cholemic bleeding, vitamin K has shed little light on the actual mechanism of coagulation. It was the development of quantitative methods for determining prothrombin that was mainly responsible for the significant advances that have been made during the last fifteen years. The one stage method, particularly because of its reliability, directness and simplicity, was responsible for transferring the study of coagulation from the esoteric and academic laboratories of physiology to the clinical and hospital laboratories. As a result the hypoprothrombinemias readily came under clinical control.

It became increasingly apparent nevertheless that the classical theory and existing tools and methods were inadequate for continuing the theoretic and clinical advances. The classical theory had inherent weaknesses and defects which eventually necessitated its replacement. The principal shortcomings of the theory were:

1. It had no explicit explanation for the source of thromboplastin.
2. It failed to define the function of the platelets.
3. It explained the action of thromboplastin and calcium as being catalytic.
4. It assumed prothrombin to be a unit substance.
5. It offered no explanation for the autocatalytic nature of the coagulation reaction.
6. It did not correlate coagulation with the complete generalized mechanism of hemostasis.

The findings obtained recently in the study of coagulation have made it possible to formulate a new theory which is concisely summarized in figure 1. The scheme should be considered as a blue print

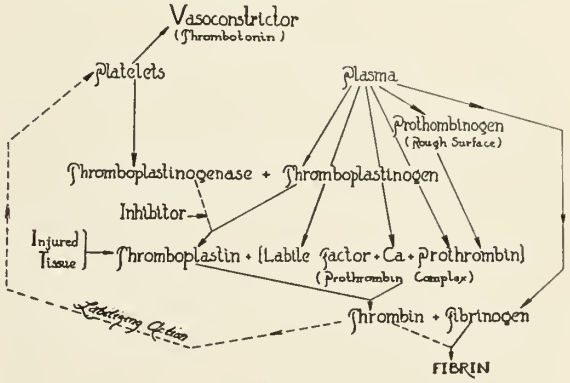


Fig. 1.

based on observations and results obtained experimentally. Its purpose is to serve as a guide for further investigation and should not be regarded in any sense as final. In this review the findings which led to the present theory will be chronicled.

THE PROTHROMBIN FACTOR

In 1943 Quick[2] observed that when stored oxalated human plasma in which the prothrombin time had been much increased was mixed with an equal volume of plasma from a dog with a severe hypoprothrombinemia induced with Dicumarol, a mixture was obtained which actually had a prothrombin time shorter than normal. From this it was concluded that the factor which disappeared in stored plasma was not the same as that which is decreased by Dicumarol. It was concluded that prothrombin consisted of two components, one characterized by its instability on storage, the other by its adsorbability to aluminum hydroxide and similar agents. The following year, Owren[3] discovered a patient with a hypoprothrombinemia, which was corrected by the addition of plasma deprothrombinized with aluminum hydroxide. He concluded that the patient did not lack true prothrombin but a new clotting agent which he named factor V. Due to war conditions he was not aware of Quick's work, but it is now fairly certain that his agent is identical with the labile factor.

From the Department of Biochemistry, Marquette University School of Medicine, Milwaukee, Wisconsin.

In 1946 Fantl and Nance[4] reported a new factor which they postulated as an accelerator in the conversion of prothrombin to thrombin, and the following year Ware, Guest and Seegers[5] likewise found evidence of a new agent which they believed increased the speed of the activation of prothrombin. They named their factor "accelerator globulin." In their early work, they denied that there was any relationship of Ac globulin to the labile factor, but eventually after correcting several of their earlier observations such as on the stability of Ac globulin during storage they concluded that the two were related;[6] and it is probable that they are the same.

It is now generally agreed that in addition to the classical prothrombin, blood contains another agent essential for prothrombin activity which can be designated by the noncommittal term, "labile factor." Human blood has a relatively low concentration in contrast to rabbit blood which contains fifty times as much. Neither vitamin K deficiency nor the administration of Dicumarol influences its concentration. The action of the labile factor is still uncertain. Owren, Fantl and Seegers ascribe to it a catalytic function whereas Quick and Stefanini[7] maintain that it acts stoichiometrically with the other clotting factors to form thrombin. They[8] have shown that as the labile factor diminishes the amount of prothrombin converted decreases, irrespective of the excess of thromboplastin. Accordingly, they have tentatively postulated that the formation of thrombin may be expressed by the stoichiometric equation:

Thromboplastin + labile factor + calcium + prothombin = thrombin.

It is likely that this equation fails to indicate the actual reactions involved. It is merely an over all expression which serves as a practical basis for analytic purposes. It leaves many problems unanswered, as for instance that of calcium. The evidence indicates that only bound calcium enters the reaction, but thus far no explanation can be given as to why human plasma requires four times as much calcium as that of the dog, and why the calcium requirement rises as the prothrombin is decreased either as the result of Dicumarol action or vitamin K deficiency.[9]

Prothrombin.—By means of a new method for determining prothrombin, this factor can now be defined accurately and characterized. Quick and Stefanini[7] found that tricalcium phosphate quantitatively adsorbs prothrombin from oxalated or native plasma and that sodium citrate completely elutes it. The eluate, which is a quantitative concentrate of prothrombin, can be assayed by adding it to a standard deprothrombinized plasma and determining the prothrombin time of the mixture.

As a result of this procedure, prothrombin can be defined in terms which are both physiologic and chemical. Prothrombin is that clotting factor which is adsorbed by tricalcium phosphate, is inactivated and made unadsorbable to tricalcium phosphate by sodium citrate, is diminished in vitamin K deficiency, Dicumarol poisoning and in certain types of congenital hypoprothrombinemia. These characteristics are specific for prothrombin, since tricalcium phosphate does not remove significant amounts of other clotting factors; and in the common types of hypoprothrombinemia only prothrombin is decreased.

The Labile Factor.—It is essential for thrombin formation but its function and characteristics are not clearly defined. It disappeared in stored oxalated plasma and is inactivated like prothrombin at approximately 60 C. It is most readily assayed by determining the amount that has to be added to stored human plasma to bring the prothrombin time to an arbitrarily fixed value.[10] Prothrombin appears to require a definite quantity of labile factor for the reaction to form thrombin. An amount greater than this minimal requirement of labile factor neither accelerates the reaction, nor increases the amount of thrombin formed. This agent therefore cannot be regarded an accelerator.

Since a diminution of labile factor rarely occurs and since amounts in excess of the minimum requirement do not influence the prothrombin time, this agent can be regarded as an insignificant influence on the prothrombin determination by the one stage method except in exceedingly rare instances. The close agreement observed between the one stage method and the adsorption and elution procedure in the hypoprothrombinemia resulting from Dicumarol and vitamin K deficiency further establishes the reliability of the former test provided the directions as I have given are followed explicitly.

Prothrombinogen.—As already mentioned, when stored human plasma is mixed with deprothrombinized plasma, a mixture is obtained which has a prothrombin time that is significantly shorter than normal. Likewise when hemophilic plasma is put in a glass test tube and incubated at 37 C., the prothrombin time decreases, often from a normal of 12 seconds to as low as 8 seconds.[11] This increase in prothrombin activity has been observed by others, particularly by Alexander[12] and Jacox.[13] They have interpreted this observation as being due to the evolution of an agent which increases the speed of the conversion of prothrombin to thrombin. Quick and Stefanini[11] have offered a simpler and more likely explanation. According to their view, prothrombin in human blood is partly free and partly in an inactive or precursor state. For the conversion of the inactive prothrombin, which for convenience can be designated prothrombinogen, to become activated to free prothrombin, a rough surface such as glass is necessary. Whether an additional factor is required for this conversion is not known. Perhaps prothrombinogen is prothrombin combined with an inhibitor which on storage in glass is disrupted spontaneously. While the theoretic aspect of this problem can be set aside until further data have been collected, the practical implications require immediate attention.

So far, experimental studies indicate that the activation of prothrombinogen requires a rough

surface. A silicone surface will not permit this reaction. Since rough surfaces in the physiologic sense are absent intracorporally, it is uncertain whether the inactive prothrombin participates directly in hemostasis. Practically, it becomes important to determine the free prothrombin as it actually exists in blood. Therefore, the fewer the manipulations, the more accurate the determination. By collecting blood with a silicone-coated needle and syringe, and centrifuging it in a silicone treated test tube, a plasma is obtained which on addition of thromboplastin (acetone-dehydrated rabbit brain) yields a prothrombin time of 12 seconds in a high percentage of normal individuals. This can be regarded as the true measure of active prothrombin in normal human blood. The addition of sodium oxalate or citrate and a transfer to glass is enough to produce detectable changes but, fortunately, these are so small that they can be disregarded except in precise research.

Total prothrombin can be measured by incubating native plasma (obtained by high centrifugation using silicone glass ware) in glass at 37 C. Due to the paucity of platelets, little thromboplastin becomes available and therefore only a minute amount of prothrombin becomes consumed while all of the prothrombinogen becomes activated. A determination of the prothrombin of the serum yields a fairly accurate estimate of the total concentration of prothrombin. The two stage method likewise appears to measure total prothrombin.

The relation of free to total prothrombin is of clinical interest. In one type of congenital hypoprothrombinemia, only the free is low, while in a second type both free and total are diminished.[11] Preliminary studies in my laboratory indicate that, after the administration of Dicumarol, the free decreases first while the inactive fraction often shows little diminution for several days. Since the two stage method measures only total, an explanation can be offered why the one stage shows a drop several days earlier than the two stage, and also why it often shows a more rapid recovery of prothrombin when the drug is stopped. Since the available information suggests that only the free prothrombin participates in the immediate process of hemostasis, the one stage method must be considered as the only reliable guide at present in the clinical control of hypoprothrombinemia.

THE THROMBOPLASTIN FACTOR

The need of an agent necessary for the conversion of prothrombin to thrombin was already recognized by Alexander Schmdit, who designated it as zymoplastic substance. Morawitz named it thrombokinase, a term which implies that it functions catalytically. Howell gave it the noncommittal and preferred name of thromboplastin. It was assumed by most workers that it acted as a catalyst or enzyme, but Mertz, Seegers and Smith[14] in 1939 made the important contribution showing that thromboplastin reacts stoichiometrically with prothrombin.

The source of thromboplastin for clotting remained until recently a subject of controversy. The majority of workers accepted the idea that it was supplied by the platelets on disintegration. A number of investigators, particularly Lenggenhager[15] and Lozner, Taylor and MacDonald[16] postulated that thromboplastin was present in the plasma in an inactive form which in contact with a rough surface became activated. These workers completely dismissed the platelets as having any role in the formation of thrombin.

In 1947 Quick[17] reported experimental observations which aided in bringing the discordant views into unison. He found that platelets do not contain thromboplastin but they supply the activator which converts inactive plasma thromboplastin (thromboplastinogen) to the active state. The free thromboplastin immediately reacts stoichiometrically with prothrombin to form thrombin. The latter not only changes fibrinogen to fibrin, but also acts on platelets, labilizing them. As a result, more platelets disintegrate and more thrombin is produced. A chain reaction is thereby initiated in which thrombin and platelets are the cardinal factors. Any agent or condition which removes thrombin, or prevents its formation, will break the chain reaction. As soon as the thrombin concentration is depressed the stability of the platelets increases. In extreme hypoprothrombinemia, for instance, the platelets in native plasma show little tendency to agglutinate and to disintegrate. The same stability of platelets is found in hemophilia, which has erroneously been considered by some investigators as the basic cause of the disease, whereas it is merely the resultant.

An examination of figure 1 will make it clear that a deficiency of thromboplastin can arise from (1) a lack of thromboplastinogen, (2) a lack of platelets and (3) an inhibitor of the platelet enzyme.

The Prothrombin Consumption Test.—The thromboplastin factor was well nigh impossible to evaluate as long as no means were available to determine it quantitatively. In 1947 a simple test was devised to fill this need.[17] Blood is allowed to clot under standard conditions and after varying periods of time the prothrombin remaining in the serum is determined by a modified one stage procedure. The theoretic basis of the test is that the reaction between thromboplastin and prothrombin is stoichiometric and that, therefore, the greater the available amount of thromboplastin, the less the quantity of prothrombin remaining after coagulation is completed. The available thromboplastin is the resultant principally of the concentration of thromboplastinogen, and of the number of platelets. When the latter count is more than 100,000 per cm., the prothrombin consumption can be considered a measure of the concentration of thromboplastinogen. When the platelet count is decreased, the amount of available thromboplastin drops proportionately and in severe thrombocytopenia little prothrombin is converted.

In addition to the concentration of thromboplastinogen and the number of platelets, two other factors must be considered. One is the inhibitor of

the platelet enzyme, antithromboplastinogenase, which may be increased to such an extent that it may produce a hemophilic-like disease as will be discussed later. The second factor is the conversion of prothrombinogen to prothrombin. When blood coagulates in glass, all of the prothrombinogen ultimately is changed to the reactive state. It is essential that the test be carried out under carefully controlled conditions in order to obtain complete conversion of the inactive prothrombin. Unless this takes place, a serious error is introduced.

Hemophilia.—In this disease a congenital lack of thromboplastinogen occurs. Preliminary results from my laboratory suggest that the degree of deficiency is fixed, and probably remains constant throughout the life span. The lower the level, the more severe the bleeding tendency. In some hemophilic persons the concentration is high enough to meet ordinary emergencies, and the hemorrhagic tendency is so mild that the condition is subclinical. The innate defect, however, is not the sole factor responsible for the abnormal bleeding. As long as the vascular system is intact, no hemorrhage occurs even though the blood may be totally incoagulable. But a break in the circulatory system, whether due to a mechanical injury such as trauma or to a physiologic dysfunction, immediately manifests itself as abnormal bleeding. The actual injury may be so slight that in a normal individual it would go entirely unnoticed but, when superimposed on a defective coagulation mechanism such as exists in hemophilia, serious bleeding ensues.

The prothrombin consumption test offers a specific diagnostic means for this disease.[18] Due to the low concentration of thromboplastinogen, little prothrombin is consumed during coagulation. The test is valid, only if the platelet count is normal. The coagulation time determination is of diagnostic value but mainly as a screening test. It may be normal in mild cases. Any admixture of tissue juice in collecting the blood makes the test valueless and misleading.

Thrombocytopenic Purpura.—Since the platelets are essential for the activation of thromboplastinogen, little thromboplastin becomes available when the platelets are drastically reduced. In thrombocytopenia, the prothrombin consumption is greatly reduced,[19] which means that little thrombin is formed. Heretofore, it was generally held that no coagulation defect was present because the coagulation time is usually normal. It is now clear that a serious defect in the clotting mechanism exists. The actual bleeding diathesis, however, is not due directly to lack of platelets but to a hyperpermeability of the capillaries. Whether this is caused by a toxic agent or the lack of a factor needed for vascular tonicity is not known. The clotting defect resulting from lack of platelets assuredly accentuates the bleeding arising from the vascular defect.

Hemophilia-like Disease.—True hemophilia appears early in life and is limited to males. A number of cases of an acquired type of a hemorrhagic disease, simulating hemophilia, have been reported. The disease occurs in both adult males and females who, prior to its onset, had no bleeding tendency. Lozner, Joliffe and Taylor[20] were the first to recognize that the blood of such individuals contained an inhibitor. Thus, when the blood of a patient with this disease was mixed with normal blood in equal volumes, the resulting mixture had, like the patient's blood, a prolonged coagulation time. In contrast, when hemophilic blood is mixed with an equal volume of normal blood, the mixture has a normal coagulation time. Munro[21] has traced this inhibitor to the gamma globulin fraction. Craddock and Lawrence[22] have confirmed this, and have postulated that it is an antibody formed as the result of transfusion of blood or plasma or from the injection of Fraction I of Cohn. Quick and Stefanini[23] have concluded that this agent inhibits the activator which converts thromboplastinogen to its active derivative. The treatment of these patients is difficult. Blood transfusion does not correct the coagulation defect, since the blood usually contains enough excess of the inhibitor to affect the coagulability of the injected blood.

HEMOSTASIS

The widely accepted concept that hemostasis is achieved by a fibrin plug was challenged seriously when in 1920 Rabe and Salomon[24] found a complete absence of fibrinogen in the blood of a boy 9 years old. While this child had bleeding episodes, he did not exsanguinate. A number of other cases have since been found. They have a congenital lack of the mechanism required to produce fibrinogen. Their ability to form thrombin is normal. Significantly, these patients with a completely incoagulable blood may have a much milder bleeding tendency than a hemophilic person. One girl with afibrinogenemia menstruates regularly and, although the bleeding is heavier than normal, it stops spontaneously.[25] It is not uncommon for these patients to sustain injury and to have teeth extracted without any abnormal bleeding. Since these individuals cannot form a fibrin clot, it must be concluded that effective stanching can occur in its absence.

The findings in afibrinogenemia lead to the rather radical conclusion that the primary objective of blood coagulation in hemostasis is not the formation of a mechanical fibrin plug. From the known facts, a new hypothesis which is in accordance with sound physiologic principles can be formulated. As already discussed, thrombin not only coagulates fibrinogen, but it also labilizes platelets; as a result of which they disintegrate and liberate the activator of thromboplastinogen. The platelets also liberate a potent diffusible vasoconstrictor which affects all the vessels in the surrounding area. Thus, by means of two agents, thrombin and platelets, an autocatalytic or chain reaction is maintained and as a result of this reaction a vasoconstrictor is made available. Zucker[26] has convincingly demonstrated experimentally the hemostatic importance of this platelet vasoconstrictor.

The coordination of these reactions is essential. This task has been facilitated by the finding of Quick and Favre-Gilly[27] that when blood coagulates only a minute amount of prothrombin is converted to thrombin. The chain reaction is depressed because the fibrin has a strong avidity for thrombin and removes it by adsorption so rapidly and effectively that platelet lysis is greatly retarded. Fibrin actually is the primary physiologic antithrombin, and if it were not for the efficient removal of thrombin by the clot, the chain reaction would become uncontrolled and all of the circulating blood would be coagulated rapidly. Fibrin does not stop the thrombinogenic reaction but merely delays it. Thus, in the clot more thrombin is formed, and the platelets enmeshed in the fibrin reticulum are slowly but continuously undergoing lysis. The reaction, therefore, continues long after the clot has formed, and the production of the vasoconstrictor agent is not massive, which would lead to arterial spasm, but gradual and prolonged which is ideal for hemostasis. According to the hypothesis outlined, the function of the clot is not to act as a mechanical plug, but to moderate and to localize the thrombinogenic reaction and the production of the platelet vasoconstrictor.

On the basis of this new concept, the limitation of the coagulation time as a criterion of hemostatic efficiency becomes clear. The speed of clotting in itself has little significance. A much more significant measure is the prothrombin time determination which measures the prothrombin activity of the blood and by the prothrombin consumption test which estimates the available thromboplastin. With these two tests all the known hemorrhagic diseases of the hematostaxic type, i.e., with the defect residing in the blood, can be diagnosed and usually studied quantitatively. For the angiostaxic group in which the dysfunction resides in the vessel, only the bleeding time and the capillary fragility tests are so far available.

SUMMARY

The classical theory of coagulation which has served as the guide to studies which resulted in the development of methods for determining prothrombin, the rational employment of vitamin K and other notable achievements, has reached the limits of its usefulness. A new theory is proposed, and its clinical applications discussed. The new concepts on which this theory is based are: (1) platelets furnish the activator for the conversion of thromboplastinogen to thromboplastin, (2) thromboplastin, a labile factor, prothrombin and calcium react stoichiometrically to form thrombin, (3) thrombin not only coagulates fibrinogen, but acts on platelets causing them to undergo lysis, (4) the action of thrombin on platelets sets up an autocatalytic reaction, and (5) the disintegrating platelets liberate in addition to the accelerator of thromboplastinogen, a vasoconstrictor which can be considered the principal agent effecting hemostasis.

The hemorrhagic diseases caused by a coagulation defect can be divided into two major classes, the hypoprothrombinemias and the hypothromboplastinemias. In the first class are the diseases due to vitamin K deficiency, the hypoprothrombinemia caused by Dicumarol and allied drugs, and the congenital deficiency of prothrombin. In the second class are hemophilia, hemophilic-like disease and thrombocytopenic purpura.

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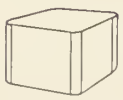
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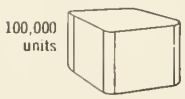
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History.—The patient was a 52 year old white male. He had had the usual diseases of childhood with no permanent sequelae and no serious illnesses, accidents or operations in adult life. There was no history of tuberculosis, diabetes or malignancy in his family. His occupation was automobile mechanic.

Previous History.—Following his discharge from Army service in 1919, he was perfectly well until about June, 1945, when he had a "bad cold" and what he thought was "flu." When this did not clear up in a couple of weeks, he consulted his family physician who made a careful physical examination and had an x-ray made of his chest. The x-ray showed some pathologic condition at the right apex of the chest. The clinical symptoms and history were sufficient for a tentative diagnosis of pulmonary tuberculosis. He was advised to go to a hospital where the diagnosis of pulmonary tuberculosis was confirmed by additional x-rays and the finding of tubercle bacilli in the sputum. He was transferred to the Veterans Administration Hospital on September 28, 1945.

Physical Examination.—Aside from his poor nutrition and his evident loss of weight, his physical examination was essentially normal except for some diminished resonance and slightly increased breath sounds at his right apex. No rales were heard at that time.

Laboratory Data.—Red and white blood cell count, hemoglobin and urinalysis were within normal limits. Serologic study gave negative findings. Sedimentation rate was 22 mm. per hour. Vital capacity was 28 per cent below normal. Sputum was positive for acid-fast bacilli. Chest x-ray showed a small cavity in the lower right lobe, in addition to the involvement of the right apex, and also some slight spread to the left apex.

Progress.—On admission the patient was placed on a strict twenty-four hour bed rest routine. On October 10, 1945, ten days after admission, a right pneumothorax was initiated. By November 14, 1945, one month later, his sputum was consistently negative. The cavity at the right base appeared to be closing. On April 13, 1946, six and one half months after admission, his condition continued to improve so favorably that he was anxious to be allowed to go home and get his pneumothorax refills elsewhere. He was discharged as a "quiescent" case.

The patient got along well for about a year. He had changed his occupation to that of salesman and had gotten his refills regularly. About April, 1947, one year after leaving the hospital, he lost his pneumothorax space and his refills had to be abandoned. Soon after that, his sputum again became positive; also, he had lost about fifteen pounds in weight during the last year.

On May 16, 1947, he was readmitted to the hospital. His right lung lesion had progressed slightly, as shown by x-ray, and showed a small cavity at the apex. The left lung had cleared up almost completely.

Laboratory Data.—On May 19, 1947, the red blood count was 5.1 million and Hb. 96 per cent; white blood count was 14,000 with 78 per cent polymorphonuclears. Sedimentation rate was still 22 mm. per hour. The urine showed from a trace to one plus albumen with an occasional hyaline and granular cast. The sputum was positive, both on concentrates and culture.

Progress.—The patient again was placed on strict bed rest and given a course of streptomycin. He improved some, gained a little weight and said he felt better. On June 13, 1947, one month after readmission, "Appetite somewhat improved, but states that frankfurters give him stomach upsets." On July 21, 1947, the red blood count was 4.4 million with 72 per cent hemoglobin. On August 17, 1947, three months after readmission, "Nauseated with vague epigastric pains. Abdominal examination negative." On September 4, 1947, three weeks later, he complained that the food was not well prepared and gave him indigestion. On October 1, 1947, the sputum converted to negative on concentrates, but was still positive on culture. The cavity in the upper right lobe was still open, but the one in the lower right was closed. On January 28, 1948, eight months after his readmission, in spite of his saying that he felt well, he did not look well and had a sallow complexion and appeared weaker. His sputum soon became positive again on cencentrates. On February 13, 1948, nine months after his readmission, his blood count was 3.8 million red blood cells with 72 per cent hemoglobin; the white blood count was 18,000 with 83 per cent polymorphonuclears.

It might be well at this time to interrupt the review of his progress notes and have a discussion of the clinical aspects of the case up to this point.

CLINICAL DISCUSSION

A. A. Sprong, M.D.: This patient started out as a fairly typical case of pulmonary tuberculosis. The history of a chronic cold or the "flu," which persists indefinitely, is rather common. The patient goes to his family doctor after three to four weeks, some-

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times with streaking of blood or a frank hemorrhage. A frank hemorrhage will frighten the patient usually so that he goes to his physician immediately. The doctor was wise in this case and did not simply give the patient cough medicine and tell him to come back in a week or two, but he made a careful physical examination and took a chest x-ray. This gave him sufficient evidence to make an initial diagnosis of active tuberculosis which was confirmed by the hospital to which he was sent. The patient improved in the hospital under strict bed rest, with the added help of pneumothorax, and he soon reached a stage at which he could be discharged as a quiescent case. The patient continued with his pneumothorax refills as an outpatient for more than a year, when he lost his pneumothorax space. Soon the patient developed an exacerbation of his symptoms and his sputum became positive again.

The patient was readmitted to the hospital where he was given a course of streptomycin to assist in stabilizing his disease. The antibiotic therapy did help his chest disease, but his general condition deteriorated and became worse. The patient developed vague pains in the upper abdomen, his blood became anemic and his skin took on a sallow hue. It was evident that something had gone wrong. The problem was to find out what changes were occurring. Leads were the frequent attacks of indigestion and vague abdominal pains. These symptoms are definite indications for another complete physical examination and a gastrointestinal x-ray series.

Progress.—These examinations were made by the ward physician, the surgical consultant and the radiologist. Physical examination showed a diffuse mass in the upper left abdomen. A gastric analysis showed an absence of free hydrochloric acid and no blood. No occult blood was found in the stools. X-ray showed a tumor of the middle portion of the lesser curvature of the stomach. On February 19, 1948, an exploratory abdominal section was done and an inoperable carcinoma of the body of the stomach was found with wide-spread metastasis to surrounding tissues and organs. A biopsy of the omentum was secured at the operation and microscopic examination of this tissue showed an adenocarcinoma, scirrhus type.

Convalescence was stormy. The lower end of the incision reopened and a considerable amount of thick, foul-smelling pus escaped. His condition continued from bad to worse until March 27, 1948, when he died, ten months after readmission and three and one half years after first admission for pulmonary tuberculosis. An autopsy was granted.

PATHOLOGIC FINDINGS AND CORRELATION

William H. Bailey, M.D.: Autopsy was performed on April 6. The body of the patient was well developed but greatly emaciated, suggestive of either tuberculosis or carcinoma. The sallow color of the skin suggested malignancy rather than jaundice. The mediastinum was deflected to the right, as might be expected in a case in which the right lung had been restricted for more than a year by disease and a pneumothorax.

The right lung was strongly adherent to the chest wall by extensive adhesions with a pocket of pus in the pleural space at the base. These adhesions were undoubtedly a complication of his numerous pneumothorax refills over a year's time and the cause of his losing his pneumothorax space. The cavity in the right apex was still open and undoubtedly was the source of his positive sputum. The cavity in the right lower lobe was closed, as was shown by x-ray. Numerous round, white smooth appearing areas of varying sizes were scattered throughout the right lung. None of these appeared typical of malignant metastases and microscopic examination showed them to be tuberculous caseation.

The left lung was enlarged and ballooned out of the chest cavity. There were large and small emphysematous bullae along its edges and at the apex. This condition might be expected when the opposite lung had been thrown out of condition for a year or more by disease and a pneumothorax. The spread of the tuberculosis to the left apex, which was shown in the early x-rays and later cleared up, was not evident at autopsy, there being only a few shot-like fibrocalcific areas left to show where the disease had been.

The heart was essentially normal except for an area of fibrosis in the left ventricular wall found on microscopic examination. No explanation for this was brought out in the previous medical history of the case. It probably was not due to tuberculosis.

The abdomen showed the original malignant tumor to be located in the lesser curvature of the pyloric third of the stomach. There were extensive and firm, wide-spread adhesions of metastatic malignant involvement throughout the upper abdomen. The omentum, mesentery, visceral and parietal peritoneum with regional lymph nodes were thickened and studded with malignant nodules. The distribution and appearance of these suggested a lymphatic or surface spread. This type of distribution may be one reason for the late appearance of symptoms. The mesenteric and retroperitoneal lymph nodes also showed extensive malignant involvement.

It was impossible to make a satisfactory dissection of the pyloric end of the stomach and the head of the pancreas because of strong adhesions and the extensive involvement of these structures. From within the stomach, the primary lesion appeared to be in the stomach wall rather than in the head of the pancreas. No ulceration of the stomach mucosa was found. Other factors in the case also point to the stomach as the site of the primary lesion. The patient had few signs of a tumor being present until late in the disease when there was wide metastasis and it was already inoperable.

Tumors of the stomach, particularly in the loca-

tion of this one, are often "silent" until late in the condition. Malignancy of the pancreas usually causes pain rather early because of involvement of the nerves around the celiac axis. Carcinoma of the head of the pancreas usually causes jaundice early because of the involvement and stenosis of the common duct. No jaundice developed in this case, only a sallowness which often accompanies wide-spread malignancy anywhere. Carcinoma of the stomach is more prone to give a surface spread than is carcinoma of the pancreas. Changes in the gastric secretions, as the absence of free hydrochloric acid which was found in this case, are much more likely to occur in carcinoma of the stomach. The capsule of the spleen showed some malignant metastasis but no nodules were found in its substance. The liver had numerous malignant nodules, both on its surface and within its substance. The rest of the organs were free of metastasis and were essentially normal.

The immediate cause of death was adenocarcinoma of the stomach with metastasis to the regional lymph nodes, parietal and visceral peritoneum, omentum, mesentery, pancreas and liver. Secondary or contributing causes of death were (1) chronic pulmonary tuberculosis, active, right, with cavitation, (2) empyema with pleuritic adhesions, right, tuberculous, (3) emphysema, left lung, compensatory.

The most striking feature about the case was the size of the tumor and the extensive metastases which up to just before the time of the exploratory operation had given the patient and his physicians little indications of its presence.

CLINICAL SUMMARY

PAUL C. BRUCE, M.D.: This case of active pulmonary tuberculosis with cavitation in the lower portion of the right lung and some infiltration in the left lung was treated with a right pneumothorax without prior bed rest. Apparently early results were good. The pneumothorax was selective, the cavity seemed to close and sputum converted, but the upper part of the lung was adherent and fluid formed. The fluid soon cleared but x-ray appearance and increasingly positive intrapleural pressure readings after refills showed pleuritis was obliterating the pneumothorax space. The patient was permitted to leave the hospital as quiescent and continue pneumothorax refills as an outpatient, notwithstanding this unfavorable condition, and when weight, which had shown an early gain, was below admission level and declining. It is the old story of hoping for a good result from a defective pneumothorax and failing to insist upon proper rest regimen for a sufficient time.

In a year the patient returned having lost his pneumothorax, also about fifteen pounds in weight, and with positive sputum. Streptomycin therapy resulted in improvement. There was some gain in weight and the sputum again became negative. However, it became evident that empyema had developed in the old pneumothorax space—the common and much dreaded complication of an unsatisfactory pneumothorax.

About one month following readmission symptoms of gastrointestinal nature were noted. The disagreeing of certain foods, loss of appetite, belching, bloating and indigestion are observed in the record from time to time. At one time about six weeks after readmission a blood count suggested a slight anemia (red blood count 4,400,000 and Hb. 72 per cent). Lextron was given but discontinued after thirteen days because of increasing gastric distress. These symptoms apparently were considered and, of course, are not unusual in active tuberculosis, especially when complicated by empyema. Streptomycin also was considered as a probable cause. It is evident now, better than then I am sure, that streptomycin almost never causes gastrointestinal symptoms, that, in fact, its effect is usually salutary in this respect. One might speculate upon whether streptomycin may have masked to some extent the serious gastrointestinal condition which was developing. Severe symptoms of this nature did not appear for about six months when gastric carcinoma had reached an advanced stage.

In retrospect it does appear that gastric analysis and gastrointestinal x-ray examination might have been done earlier under other circumstances. And one is reminded that persistent gastrointestinal symptoms should be investigated with reference to that system itself, in spite of other coexisting conditions or the use of medicaments which may be considered causative factors.

TERRAMYCIN REPORTED EFFECTIVE AGAINST TWO TYPES OF PNEUMONIA

Results indicate that terramycin, a newer antibiotic drug derived from a mold, is remarkably effective against both pneumococcic and virus pneumonia, a group of New York doctors report in the August 12 *Journal of the American Medical Association.*

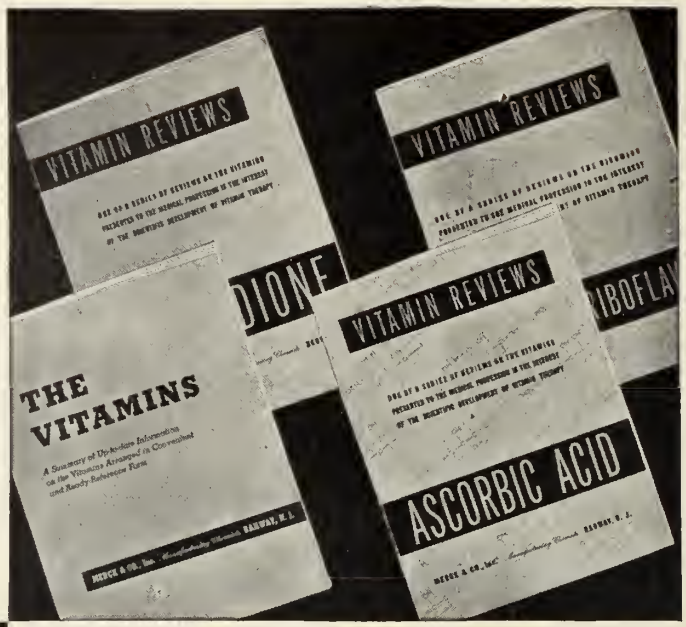
Terramycin proved to be valuable in treating eighteen patients with pneumonia due to pneumococcus microbes and seven patients with virus pneumonia, Drs. George W. Melcher, Jr., Count D. Gibson, Jr., Harry M. Rose and Yale Kneeland, Jr., of the Columbia University College of Physicians and Surgeons and Presbyterian Hospital say.

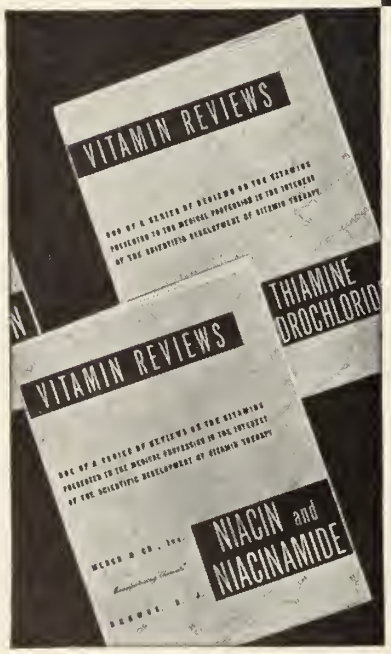
"Results indicate that terramycin is remarkably effective in the treatment of both types of infection," the doctors point out.

The drug was administered by mouth in the form of tablets or capsules. Vomiting and nausea occurred in some patients as side effects of terramycin, but these symptoms seemed less severe than similar reactions observed in patients following administration of aureomycin, according to the doctors.

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Case Reports

SUCCESSFUL PRIMARY GRAFT OF AN AVULSED MAJOR PORTION OF AN EAR

M. FOSTER WHITTEN, M.D.
CARTHAGE, MO.

THIS REPORT of a successful primary graft of an avulsed, major portion of an ear is presented because of its rarity. Although the chances of survival of such a graft may be slight, this case stresses the advisability of an attempt being made to reconstruct the ear by first carefully suturing the avulsed portion back into its normal position. "There is no harder task in plastic surgery than the reconstruction of an ear that has been lost."[1]

REPORT OF CASE

History.—L. G. M., a white transport truck driver, aged 26, was admitted to McCune-Brooks Hospital on October 24, 1949, with his right ear virtually having been torn off as he was thrown through his windshield in a head-on collision about an hour before admission. He walked into the hospital holding a blood-soaked handkerchief and a small towel over the lacerated ear which he had immediately placed on the wound to control the bleeding.

Examination.—The patient was a well developed, well nourished young man weighing about 130 pounds, was ambulatory, mentally alert and appeared not to



Fig. 1. After eighteen days. The avulsed central portion is outlined with methylene blue.

be in shock. Temperature was 98.4, pulse 82, respirations 20, blood pressure 116/70.

The central three fourths of the right auricula was completely avulsed down to the skull level. The ablated portion of the ear was found intact in the blood soaked handkerchief hanging to the lower posterior margin of the wound by a shred of skin 2 mm. wide. The edges of the wound were fairly smooth and there was a large clot covering the base.

Treatment.—The patient was immediately taken to the operating room. Under 2 per cent procaine local anesthesia the wound was cleaned with saline solution, debrided and the skin edges trimmed smooth. Aside from the ligation with triple O plain catgut of two spurting vessels in the base of the wound, no attempt was made to check the abundant oozing over the entire base. The avulsed portion was sutured back into its normal position with closely placed, fine, interrupted cotton sutures which were made to include an occasional bite of the cartilage to add stability. The wound was then covered with vaseline gauze and a loose dressing with gauze padding posteriorly to help support the ear in place. The patient was given a prophylactic dose of tetanus-gas gangrene antitoxin after being put to bed. He immediately received 50,000 U of crystalline penicillin and 300,000 U of procaine penicillin. The 300,000 U dose of procaine penicillin was continued daily for six days.



Fig. 2. After forty days.

Postoperative Course.—He remained afebrile throughout the entire course. The wound was dressed daily for the first two weeks since there was a profuse amount of serosanguinous discharge that soaked the dressing for the first several days but gradually subsided. After forty-eight hours the grafted portion of the ear was quite swollen and blackish-blue in color. The third day, it began to reveal a slightly pinkish color which became slowly more pronounced with each succeeding day until by the time of his discharge from the hospital on November 6, 1949, most of the graft had the appearance of normal skin. A heavy crust developed along the suture lines incorporating the sutures. A few of the sutures were removed on the eighth day. The remainder were removed a few at a time as the crust separated during the next two weeks when he returned as an outpatient from two to three times weekly. Healing was by primary intention. The entire grafted avulsed portion survived, except for a small area of skin that sloughed just above the lower, posterior suture line and extending over onto the helix anteriorly. This healed slowly with minimal scarring resulting in a small depression defect, but a good cosmetic result. He was discharged with the wound entirely healed December 3, 1949, forty days after the injury.

338 Grant Street.

Editorial Comment: The successful free transplantation of tissue depends on the ability of the transplanted tissue to assume a blood supply prior to the onset of degenerative changes of severe degree. The greater the bulk of tissue, the less likelihood there is of the establishment of this blood supply. The greater the proportion of the transplanted tissue in contact with a raw surface, the greater is the likelihood of survival.

The feasibility of the free transplantation of sections of the ear to replace losses from the alae of the nose has been established in the last few years, and it has been shown by Brown, Cannon and others that full thickness sections of the ear of considerable size can be transplanted successfully to the nose as a free graft, and from observation of these transplants some knowledge has been gained as to factors influencing survival. The minute blood supply of the recipient area is important so damaged tissues must be removed cleanly. In order to have the best chance of a take, all raw surfaces must be fully opposed with many fine ac-

[1]Parker, Douglas B.: Synopsis of Traumatic Injuries of the Face and Jaws, C. V. Mosby Co., p. 273, 1942.

curately placed sutures, and a dressing which splints the area and applies sufficient pressure to hold swelling and congestion to a minimum is desirable. If these factors are observed carefully, the success or failure of the restoration of a free transplant from the ear or replacement of an avulsed section of the ear probably will depend on the bulk of tissue involved and raw surfaces in contact.

In this successful case, one of the very few, the avulsed section was large but somewhat wedge-shaped, and the postauricular skin from the mastoid area was included, this part being relatively thin and capable of assuming a blood supply as does any skin graft, helping to nourish the attached full thickness ear section. The somewhat wedge-shaped section of ear offered near maximum contact for the assumption of a blood supply. All of these factors may be considered by the surgeon confronted with such a condition in determining the prognosis from primary repair.

EOSINOPHILIC PNEUMONITIS RESEMBLING LOEFFLER'S SYNDROME

QUENTIN CRAMER, M.D.
LEBANON, MO.
R. W. FROELICH, M.D.
LEBANON, MO.
AND
JOSEPH SUMMERS, JR., M.D.
JEFFERSON CITY, MO.

In 1931, Loeffler[1] of Zurich, Switzerland, reported a transitory and migratory type of pulmonary infiltration in which clinical symptoms and signs were minimal. Later investigators found such clinical symptoms as cough, fatigue and fever present in fifty-one cases. Crepitant rales were demonstrated in some and eosinophils occasionally were found in the sputum. In no case could tubercle bacilli be demonstrated. The chest roentgenograms showed pulmonary shadows that were variable in density and extent that seemed to fade into the surrounding parenchyma. These shadows were transient in nature and would come and go within a few days. The leukocyte count ranged from normal to 15,000 white cells per cubic millimeter and the polymorphonuclear eosinophil count varied from a mild increase to as high as 65 per cent. In Loeffler's original series eosinophilia seemed to be in direct proportion to the degree and amount of pulmonary infiltration. In a few of these cases an accompanying ascaris infestation was demonstrated. In view of this plus a constant blood eosinophilia, it was thought that the lung shadows were a visualization of allergic phenomena with the lung acting as the "shock organ."

In 1943, Smith[2] reported a case of transitory pleuropulmonary involvement with eosinophilia that was thought to be due to pollens and respiratory organisms. Pirkle and Davin[3] presented a case in July 1944 in which the fleeting pulmonary infiltrations continued to migrate for eight months before complete roentgenographic clearing occurred. In 1945-1946, Wright and Gold[4] reported twenty-six patients with cutaneous helminthiasis in whom transient pulmonary infiltration developed during the course of the disease. Hodes and Wood[5] noted a number of cases of eosinophilic pneumonitis of this type in American troops returning from the Orient. Gottdiener[6] felt that the mechanism producing this infiltration was that of an allergic edema involving the alveoli in the sensitized or hypergic lung; whereas, in the hypoallergic person such a response was the result of such infections as tuberculosis, parasitic infestations, tetanus and chronic sinusitis. Blanton,[7] in November 1945, found that in four cases of Loeffler's syndrome with allergic histories, epinephrine injected subcutaneously produced a temporary disappearance in the pulmonary shadows. It was concluded that this localized pulmonary edema might have been allergic in origin.

A case of Loeffler's syndrome in a 5 month old child was presented by O'Bryne[8] in November 1947 in which bone marrow studies failed to reveal any increase in eosinophils. Bayley, Lindberg and Baggenstoss[9] reported that large numbers of eosinophils in the pulmonic exudate, organization of the exudate, fibrosis, giant cells, granulomatous lesions and necrotizing arteritis and phlebitis were demonstrated on postmortem examination of a



Fig. 1. Chest x-ray made on September 14, 1949, showing increased density in the left midlung field.

fatal case. However, the antimortem x-ray showed clearing with only a few residual areas of abnormal density remaining. The authors interpreted this to be incomplete resolution of the pulmonary process. In July 1947 Pearlman[10] reported a case of Endamoeba histolytica with associated blood eosinophilia and pulmonic density that regressed with carbarsone therapy.

After a cursory examination of the literature on this subject it was felt that the following case resembles some of the many interesting cases previously reported as Loeffler's syndrome.

CASE REPORT

A 38 year old white male was admitted to the Louise G. Wallace Hospital, Lebanon, Mo., with the complaint of a fifty pound weight loss in four months. The patient stated that he had been in good health until four months prior to admission at which time he developed a productive cough, diarrhea consisting of four or five daily bowel movements, nervousness, fatigue, malaise and anorexia. Just prior to this illness he had donated a pint of blood to the Red Cross blood bank and he dated his illness to that time. At no time was there any history of hemoptysis, melena, emesis, hematemesis or nausea. A review of the systemic histories was not revealing.

Physical examination showed an apprehensive, extremely emaciated, white male who was acutely ill. Positive physical findings included exophthalmos, tachycardia and a fine tremor of the hands. The thyroid gland was palpable but no masses were found. Crepitant rales were present throughout both lung fields.

The white blood cell count, red blood cell count and hemoglobin estimation were within normal limits but an eosinophilia of 18 per cent was found. Sputa examinations for acid fast bacilli were negative on three occasions but numerous eosinophilic staining cells were demonstrated. Urine findings were normal. Examination of swabbings of the rectal mucosa and of fresh stools found many ova resembling Strongyloides stercoralis. Sigmoidoscopic examination disclosed a normal appearing mucosa. Radiographic studies of the chest on August 15, 1949, revealed an area of increased density in the left midlung field (fig. 1). Repeated chest films at one and three month intervals following therapy showed clearing of this process.

This patient was given two separate courses of gentian violet, 60 mg. three times daily, for seventeen days, which was followed by definite improvement in his general condition and roentgenographic clearing of the chest infiltrations. The diarrhea subsided, no parasites could be found in the stool, the pulmonary signs and symptoms disappeared, and the patient has gained twenty-six pounds. Following this therapy the patient was placed on Lugol's solution in view of the suspected hyperthyroidism and is responding well with a disappearance of all nervous manifestations, tachycardia, decrease in the amount of exophthalmos and continued weight gain.

CONCLUSIONS

A case history resembling Loeffler's syndrome is presented with a review of the literature.

The purpose of presenting this type of case is to propose that cases of atypical or virus pneumonia are incorrectly diagnosed roentgenologically. We feel that the roentgenologic diagnosis of virus or atypical pneumonia in these cases may be resultant of minimal, subclinical or otherwise unrecognized parasitic infestations.

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LINK LUNG CANCER TO PROLONGED TOBACCO SMOKING

A significant relationship between prolonged tobacco smoking and development of cancer of the lung is shown by two reports published in the *Journal of the American Medical Association.*

Excessive and prolonged use of tobacco, especially cigarets, seems to be an important factor in causing cancer which originates in the lungs, Ernest L. Wynder, B.A., and Dr. Evarts A. Graham of Washington University School of Medicine and Barnes Hospital, St. Louis, conclude.

Among 605 men with lung cancer, 96.5 per cent were moderately heavy to chain smokers for many years, compared to 73.7 per cent among the 780 men in the general hospital population without cancer, the St. Louis doctors point out. Among the cancer group, 51.2 per cent were excessive or chain smokers compared to 19.1 per cent in the general hospital group.

"In general, it appears that the less a person smokes the less are the chances of cancer of the lung developing and the more heavily a person smokes the greater are his chances of becoming affected with this disease," they say.

Smokers were classified on the basis of number of cigarets smoked per day for 20 years or more. Pipe and cigar smokers were included by counting one cigar as five cigarets and one pipeful as two and a half cigarets. Light smokers were classified as smoking one to nine cigarets, moderately heavy smokers 10 to 15, heavy smokers from 16 to 20, excessive smokers 21 to 34 and chain smokers 35 or more.

There may be a lag period of 10 years or more between the cessation of smoking tobacco and the occurrence of clinical symptoms of cancer, however, the St. Louis doctors found. Among the patients with cancer who had a history of smoking, 96.1 per cent had smoked for over 20 years.

The occurrence of carcinoma of the lung in a male nonsmoker or minimal smoker is a rare phenomenon (2.0 per cent), according to the study.

Tobacco seems to play a similar but somewhat less evident role in causing cancer in women, the doctors found. The incidence of lung cancer is less in women than in men today. This is believed to be due in part to the fact that few women have smoked for over 20 years.

There is rather general agreement that the incidence of bronchiogenic carcinoma has increased greatly in the last half century, the doctors point out. The enormous increase in the sale of cigarets in this country approximately parallels this increase of bronchiogenic carcinoma.

PRESIDENT'S PAGE

Buford G. Hamilton, M.D., better known to many Missouri physicians as Dr. Buford, has been Director of the State Division of Health for the last six months.



For many years Dr. Hamilton practiced in Kansas City in his chosen field of obstetrics and gynecology. He has taught many Kansas City and outstate Missouri physicians at the Kansas City General and St. Luke's hospitals, Kansas City.

His attitude toward the new challenging task is one of eager anticipation of the job ahead. He has stated on many occasions that he desires to cooperate in every way with the practicing physicians of Missouri.

He has already developed plans with committees of the Association for the extension of health work in Missouri. As the plans are more completely formulated, they will be reported in The Journal.

W. A. Bloom

Editorials

1951 ANNUAL SESSION

Color television will be a leading feature of the 1951 Annual Session of the Missouri State Medical Association which will be held at Kansas City, April 22, 23, 24 and 25, 1951. All sessions will be held in the Municipal Auditorium.

The remainder of the scientific program will be composed principally of guest speakers from out of the state who are outstanding in their fields. These speakers have been selected both for their ability to present practical addresses and that members may receive information on recent important advances in medicine.

PHYSICIANS AND MILITARY SERVICE

With the signing by the President of H. R. 9294 and S. 4029 amending the Selective Service Act to authorize the President to require special registration and make draft calls on persons in needed professional categories, definite information is available to physicians concerning their status. A résumé and interpretation of this bill has been made by the Washington office of the American Medical Association and is published in this issue of THE JOURNAL for the information of members.

MEDICAL SCHOOLS GRADUATE MORE PHYSICIANS

The outlook for graduation of more physicians is better than it has ever been. This was brought out in the annual report of the Council on Medical Education and Hospitals of the American Medical Association. All records for enrollment in approved medical schools in the United States were broken in the last year, according to Donald G. Anderson, M.D., Secretary of the Council.

The total enrollment in the seventy-two medical and seven basic science schools for the academic year 1949-1950 was 25,103. This represents an increase of 1,433 students, or 6 per cent, over the preceding year. The latest total is double the enrollment in 1910 (12,530), about 18 per cent higher than ten years ago and even larger than during the years of World War II when extra classes were enrolled in all medical schools on an accelerated program.

From July 1, 1949, to June 30, 1950, 5,553 physicians were graduated from approved medical schools in the United States, an increase of 459 over the preceding year. This is the largest number graduating from approved medical schools in the nation in one year except for the years 1946 and 1947, when several schools at the conclusion of their wartime program graduated more than one class during a twelve months' period. On the basis of enrollment in the senior class for 1950-1951, the medical schools of the United States have estimated that they will have slightly more than 6,000 graduates during the coming year.

The freshman class for the first time exceeded 7,000 students during 1949-1950. The actual number, 7,042, represented an increase of 354, or 5.3 per cent, over the preceding year and an increase of 1,026, or 17 per cent, over the average size of the freshman class in the ten years preceding World War II.

Dr. Anderson stated that on the basis of the record of the last year, the new schools that are being organized and the expansion of existing schools that is under way, it seems likely that within the next few years the freshman class will number close to 7,500 students.

Schools with the largest number of graduates during 1949-1950 were the University of Illinois College of Medicine, Chicago, 161; Jefferson Medical College of Philadelphia, 152; the University of Tennessee College of Medicine, Memphis, 143; Harvard Medical School, Boston, 133, and Northwestern University Medical School, Chicago, 131.

The report said that the budgets of the medical schools and basic science schools for the 1950-1951 fiscal year total about $67,500,000, representing an increase of about 42 per cent in the last four years. It also said that figures of the cost of new construction, completed, started or authorized during the last year, were available for only one half of the projects reported and the total cost of these was more than $100,000,000.

Women totaled 1,806, or 7.2 per cent, of the medical students in this country, compared to 2,109 or 8.9 per cent, in the preceding year. The percentage of veterans enrolled in the medical schools and schools of basic medical sciences during 1949-1950 was 65.9 per cent, which is almost the same as the figure of 65.8 per cent for the preceding year.

Polls taken in nineteen medical schools during the last year reveal that the percentage of students planning to enter general practice has increased from 36 to 47 per cent in the last three years. The number planning to specialize has decreased from 36 to 31 per cent. Other students polled in both periods still had to make a decision.

Organization and Economics

NEWS NOTES

Burford G. Hamilton, M.D., Jefferson City, Health Commissioner, was a speaker at a county wide meeting of the Ray County Health Council at Richmond on August 14.

John Modlin, M.D., Columbia, spoke on "Cancer of the Head and Neck" at a symposium sponsored by the Kentucky division of the American Cancer Society in cooperation with the Kentucky State Medical Association and the University of Kentucky at Lexington, Kentucky, on August 15.

R. E. Breuer, M.D., Newburg, was elected president of the staff of the Phelps County Memorial Hospital at a meeting of the Phelps-Crawford-Dent-Pulaski County Medical Society on August 4.

Robert F. McCool, M.D., Chillicothe, spoke on "The Medical Care of G. I.'s" at a meeting of the Livingston County Extension Council on August 1.

R. Lee Alford, M.D., Vandalia, was paid tribute in an article in the Mexico *Weekly Ledger* of August 3 on the occasion of his retirement from practice after fifty-five years.

Carl R. Ferris, M.D., Kansas City, spoke on "The Jackson County Medical Society" before the Optimist Club of Independence on August 30.

Samuel A. Grantham, M.D., Joplin, spoke before the Sertoma Club in Joplin on August 4 and reported on the plans of the Joplin Red Cross emergency disaster relief committee.

Charles S. Sherwin, M.D., St. Louis, will address the General Practitioners Study Club of Greater St. Louis on October 18. He will speak on "Types of Superficial Cancer Suitable for Treatment by the General Practitioner."

Wendell G. Scott, M.D., St. Louis, will present the annual Carmen Lecture at the thirty-sixth annual meeting of the Radiological Society of North America which meets in Chicago December 10 to 15.

MUSINGS OF THE FIELD SECRETARY

Judging from the present indications, few doctors over the state should encounter much difficulty this fall in locating medical meetings in their areas offering attractive postgraduate programs. For example, in addition to regular county society programs in most areas, Councilor District meetings have been scheduled as follow for afternoon and evening programs: District 10 at Cape Girardeau on October 5; District 1 at Maryville on October 9; District 2 at Hannibal on October 19; District 5 at Columbia on October 26; District 9 at Lebanon on November 2; District 8 at Mount Vernon on November 9; District 6 at Sedalia on November 30.

The Missouri Academy of General Practice has set up series of evening postgraduate programs as follow: In cooperation with the Medical School of the University of Missouri at Chillicothe on September 14 and 28, October 26 and November 9; in cooperation with St. Louis University School of Medicine at both Hannibal and at Jefferson City on September 14 and 28, October 12 and November 9; in cooperation with Washington University School of Medicine at Springfield on September 14 and 28, October 19 and 26, and at Sikeston on October 19, November 9 and December 7 and 14; in cooperation with the Kansas University School of Medicine at both Nevada and Sedalia on October 19, November 2, and December 7 and 14.

The Kansas City Southwest Clinical Society Conference will be held October 2, 3, 4 and 5; the St. Joseph Clinical Society Conference will be on October 19, and the Southern Medical Association will meet in St. Louis from November 13 to 16.

There may be other similar meetings scheduled that are not listed but these should suffice to illustrate the point in question.

The annual meeting of the Missouri Health Council will be held at the Governor Hotel, Jefferson City, on October 4. A timely and important program has been arranged on "School Health" headed by John L. Bracken, Superintendent of Clayton Public Schools. Officers for the ensuing year will be selected at this meeting.

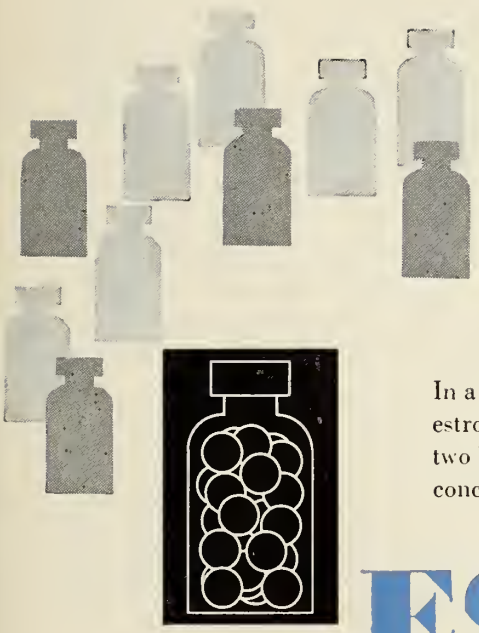
DEATHS

McMurry, Marvin C., M.D., Paris, a graduate of Rush Medical College, Chicago, 1901; member and past president of the Chariton-Macon-Monroe-Randolph County Medical Society; aged 81; died July 17.

Smith, Edward S., M.D., Kirksville, a graduate of the University of Maryland School of Medicine, Baltimore, 1900; Fellow of the American Medical Association; past president and member of the North Central Counties Medical Society; aged 75; died July 23.

Gettinger, Andrew J., M.D., St. Louis, a graduate of St. Louis University School of Medicine, 1916; Fellow of the American Medical Association; member of the St. Louis Medical Society; aged 63; died August 4.

Moore, Walter R., M.D., St. Joseph, a graduate of Washington University School of Medicine, 1920; Fellow of the American Medical Association; member of the Buchanan County Medical Society; aged 54; died August 16.



10

Estrogens were compared

In a recent clinical comparison of ten estrogens administered by various routes to two hundred menopausal women, the conclusion was reached that:

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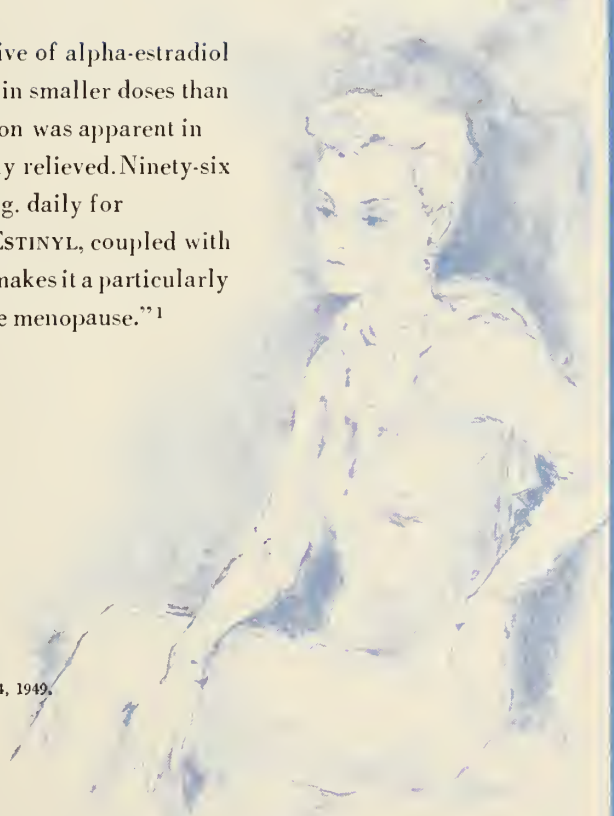
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ESTINYL Tablets of 0.02 mg. (buff) and 0.05 mg. (pink) in bottles of 100, 250 and 1000. Also 0.5 mg. in bottles of 30 and 100 tablets.

1. Perloff, W. H.: Am. J. Obst. & Gynec. *58*:684, 1949.



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Rossen, Julius A., M.D., St. Louis, a graduate of Washington University School of Medicine, 1915; Fellow of the American Medical Association; member of the St. Louis Medical Society; aged 59; died August 17.

Thornburgh, Albert H., M.D., West Plains, a graduate of Missouri Medical College, St. Louis, 1895; member of the South Central Counties Medical Society; aged 80; died August 29.

MISSOURI STATE FAIR

"The Skin in Health and Disease," the educational exhibit presented at the 1950 Missouri State Fair by the Committee on Health and Public Instruction of the Association, drew its share of attention from the record breaking Missouri State Fair crowd. This exhibit was one of eight composing "a Hall of Health," located in the Educational Building and developed by the Missouri Health Council.

In addition to the health information displayed by the exhibit, a sizable quantity of material from the American Medical Association Educational Campaign was distributed. This year represented the second venture of the Association in utilizing the State Fair as a direct means of disseminating health information to the public.

The exhibit, "The Skin in Health and Disease" is one of the many excellent educational displays made available by the Commitee on Scientific Exhibits of the American Medical Association.

NEW MEMBERS

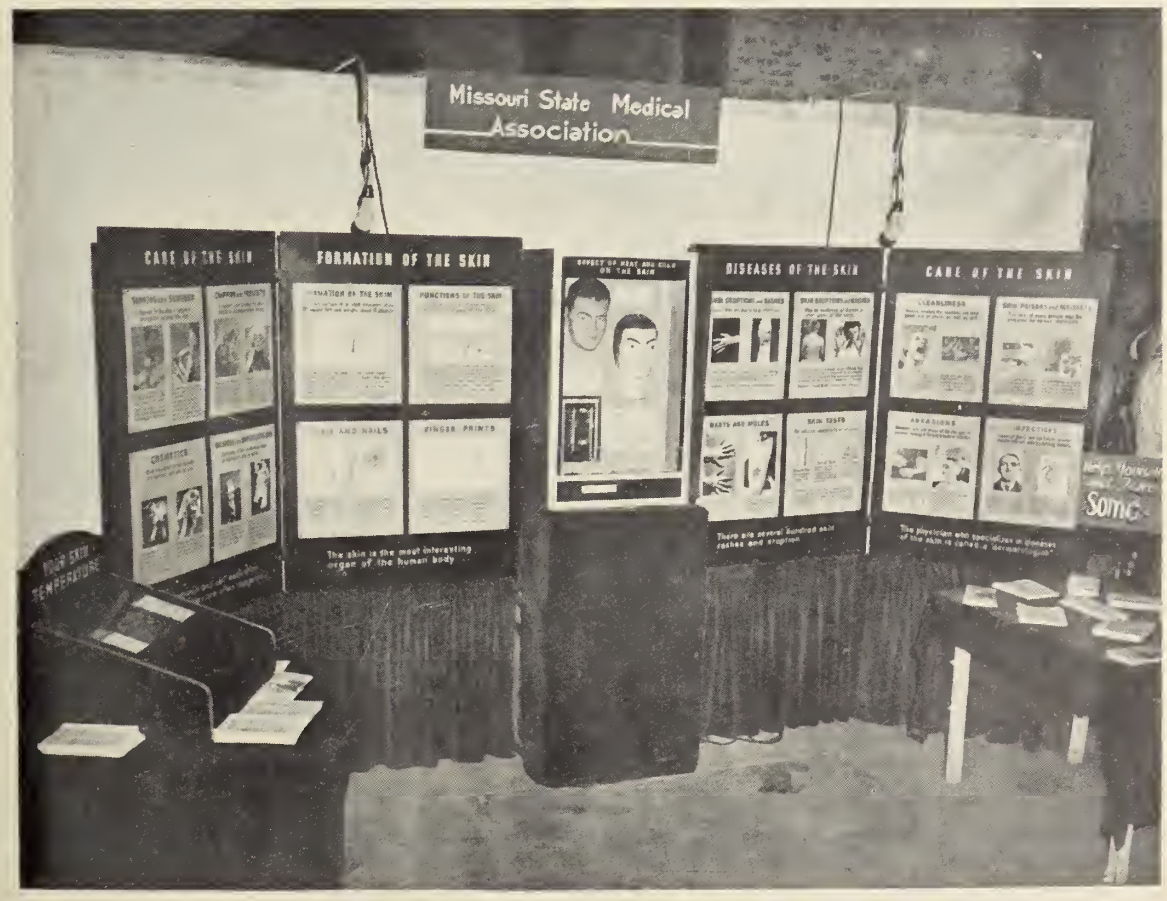
Buvinger, W. J., Jr., Jefferson City, Cole County.
Hooker, John H., Clarksville, Pike County.
Stricker, H. C., Jefferson City, Cole County.
Thurber, Claude M., Windsor, Henry County.

THE DOCTOR DRAFT BILL

The Doctor Draft bill, which the President signed on September 9 and which will be put into effect as promptly as possible, was interpreted by the Washington Office of the American Medical Association in its Capitol Clinic No. 34, issued on September 5. This interpretation follows.

Who Must Register? Physicians and dentists who have not reached the age of 50 and are not members of military reserves. Veterinarians, optometrists, pharmacists, osteopaths and/or other specialist categories if specified by the President. (Law specifically states that it does not apply to military reserves; they are already subject to military orders.)

Who Are Eligible for Draft, and in What Order Will They Be Called? Any registrant (above) is subject to induction if acceptable to the military. The law provides that registrants will be called up on the following priority: 1. Former ASTP and V-12 men who have not served on active duty (military, Coast Guard or Public Health Service) and others deferred from service to



Association Exhibit at Missouri State Fair

continue their education during World War II, and who have had less than ninety days of active duty (military, C.G. or PHS). 2. Members in the above groups who have had more than ninety days active duty (military, C.G. or PHS) but less than twenty-one months. 3. With no reference to above groups, those who did not have active service (military, C.G. or PHS) subsequent to September 16, 1940; this could include postwar medical graduates as well as other physicians who have not served and have not reached their 51st birthday. 4. All others, including World War II nonreserve veterans. Men in this group to be called on basis of extent of duty; those with least duty first, etc.

When Will Draft Take Effect? Not until the President sets a time for registration. Nothing official, but registration deadline probably in next few weeks. Men will register at "approximate points of registration" in community. After registration, Selective Service will place the man in one of four classes listed above. Then, if to be called, he will be ordered up for his physical. Following this, twenty-one days to set affairs in order before reporting to Armed Forces Induction Station. Subsequently he will be offered a commission and assignment to a service.

Can Registrant Get Reserve Commission? Yes, if acceptable to military. If the man applies for and is granted a reserve commission, he will come under military orders and Selective Service will not process him further.

Who Gets the $100 Pay Bonus? Every reserve officer called to duty, on voluntary or involuntary basis, receives the extra $100 per month. Men required to register under this act also may qualify for the $100—but only if they volunteer prior to their actual induction.

Who Is Eligible for Deferment? Actual deferment is at the discretion of local Selective Service boards. However, the law states that "the President is authorized to provide for" certain deferments. Action under this clause would be based on the registrant's previous military service, his dependency status and any undue hardship that might ensue.

Will Profession Advise Selective Service on Men to Be Called? Yes. The law provides for establishment of a National Advisory Committee "which shall advise SS system and coordinate work of state and local volunteer advisory committees with respect to selection of needed . . . " profession personnel. Committee will be composed of men "outstanding in medical, dental and allied services." Medical and dental professions must be represented on the National Committee, but representation of other professions not required. Law does not control local advisory committees; whether these are established and made effective depends on local conditions.

Will Draft Create Critical Doctor-Shortage Areas? Conceivably it might. But law itself attempts to set up safeguards. It says the National and state and local committees shall "give appropriate consideration to" civilian as well as military medical and dental requirements. Another section underscores this policy: "Maintenance of national health, safety or interest" should be considered in granting deferments. In calling up reserves, Army commanders also under orders to give careful consideration to doctor-shortage areas.

How Many Will Be Drafted? Military medical officers hope enough men now will volunteer to meet requirements. They are prepared to use law's authority for mandatory inductions, but are confident that these cases will be rare. They are hopeful that the $100 bonus, which is denied to men involuntarily inducted under this act, will attract registrants to volunteer.

Other Provisions: One section of law authorizes transfer of medical officers from one service to another, with consent of the officer and of services involved. Officer protected in promotion, retirement and pay. . . . Another provided that any persons who have served in Armed Forces of PHS after September 16, 1940, and is recalled, may be "promoted to a grade commensurate with his education, experience and ability." . . . Law states "it is the sense of Congress" that Selective Service deferments will be granted to premedical, predental and allied students in numbers equal to the present such enrollment. This ruling more or less formalizes present Selective Service policy and sets a total figure for deferments in each professional category. . . . Inductees under doctor-draft required to serve twenty-one months. . . .Anticipation is that Advisory Committees will operate like Procurement and Assignment of World War II. . . . Bonus of $100 now goes to all reserves, whether called up voluntarily or involuntarily; on this Congress reversed Comptroller General, who had ruled that reserves called up involuntarily not eligible. . . . Doctor-draft law, an amendment to Selective Service Act, expires with that law next July, unless extended by Congress.

COMMENTS ON ARMED FORCES NEEDS

During July and August, the Army reports only one former ASTP physician volunteered for duty. In addition, twenty-nine other doctors volunteered for active duty as reserves, five were commissioned in the Regular Army and the reserve commission applications of an additional seven are being processed.

In House debate on the doctor-draft bill, Chairman Vinson of the Armed Services Committee cited these figures on military medical lineup:

Overall: 6,226 doctors now on active duty; total of 11,250 needed by next July 1, on basis of present military manpower planning for 2,500,000 men.

Army: 20,000 participated in ASTP program, of whom 12,500 served on active duty and 1,000 were discharged for physical or other reasons. Of remaining 6,500, about 2,000 failed to graduate for various reasons, and 1,500 of those in practice would be ruled out for physical and other reasons. This leaves approximately 3,000 men, educated in whole or in part by Army, who have not served and would be first to be called up.

Navy: 11,176 trained in whole or part in V-12 program; 5,872 of these have served at least two years on active duty. This leaves 5,304 with no service, but 1,429 of these are in Reserve and subject to call. Of remaining 3,875 enrolled in program, 1,262 did not finish school. This leaves at the most 2,613 who have finished school and would be eligible.

On paper, these sources alone—ASTP and V-12—could supply all military medical requirements for the next year. Requirements, 5,024; ASTP and V-12, 5,613. However, military planners have warned that physical handicaps, practice in doctor-shortage areas and other factors will reduce this potential supply well below the requirements.

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PROCUREMENT AND ASSIGNMENT

Procurement and Assignment Service, what is it, was asked Robert Mueller, M.D., St. Louis, chairman of this service in World War II and recommended to the American Medical Association for that position in the State of Missouri at present, at the meeting of the Council in St. Louis on September 16 and 17. Dr. Mueller's answer, made to the Council, is printed in full for information of members of the Association. His report follows:

A request has come from the highest government sources to reestablish the Procurement and Assignment Service for Physicians in order to have some agency whereby a fair and equitable disposition between the military and civilian needs may be met.

There is considerable misunderstanding in the minds of many physicians as well as in the minds of the public in general as to the functions of the Procurement and Assignment Service. In the first place, this agency neither procures nor assigns physicians. It has no legal authority in any manner whatever, its function being a purely advisory one to the Selective Service System. It cannot order a physician into the service. It cannot assign them nor can it grant them any rank, nor has it power except to advise deferment. It is a civilian board created at the request of the Surgeon-Generals of the Army, Navy and Public Health Service to the House of Delegates of the American Medical Association. Its force, then, is a moral one having no legal status. It acts in a simple manner: The Selective Service System submits the names of physicians with the request that it be determined as to whether these physicians are essential to the communities in which they live or whether they are available for military service. If they are available, they are requested to apply for commissions and if this request is not complied with, they are inducted as privates by the Selective Service System over which Procurement and Assignment has no authority. Only the Selective Service System, and it alone, has the legal power to call a man into service. The Procurement and Assignment Service is only advisory and has no legal power.

Impartial boards of physicians have been, or will be, established throughout the State of Missouri to pass on the essentiality or availability of each physician in his particular area. Appeal can be taken from the local boards to the state board and from there to the federal board. Each physician, therefore, can be judged by men out of his particular area if he so desires. This is the democratic way to function and, because of its complete success in the late war, request has been made for its reestablishment in this period of danger.

Status of Reserve Officers

Many reserve officers are of the opinion that the Missouri State Medical Association has the power to secure their deferment from active duty. This is not the case as any military man should know. A reserve officer is a part of the first line of defense and as such is subject to call through military channels over which civilian groups have little or no control.

The Missouri State Medical Association has gone on record and has protested the induction of medical officers who have seen considerable service in World War II, in some cases amounting to four or five years. It is believed that these men have served their country and should be deferred until such time as other men who have not been privileged to give such service have had the opportunity to do so. The military has been advised of this opinion by high medical sources from the American Medical Association down through the state and local levels.

The Procurement and Assignment Service has been requested to give an opinion as to the availability and essentiality of certain reserve officers but it must be realized that before this request has been made, the military already knows the length of service of each of these officers, and its request applies only to whether or not these physicians are needed in their particular locality.

In a recent release from Washington it stated that the reserve medical officers would be called in the following order:

1. A.S.T.P. or V-12 Medical Officers who have seen no active duty.
2. Those medical officers who had less than twenty-one months active duty.
3. All other Reserve Officers.

In a qualifying paragraph, however, it also stated that whenever a military area needed medical officers in special categories, those officers would be called regardless of this order. This then depends on the Commanding General of that particular area who requests certain medical officers with special training for certain special duties.

It should be realized, therefore, that although the Missouri State Medical Association has made strong and urgent appeal to the military not to take its medical officers who have so long honorably and faithfully served their country, that in certain instances the military, because of urgent need, will feel obligated by military necessity to call on certain physicians regardless of previous service. Over this the medical profession has no control.

It is suggested that those younger physicians who have had no military service and who come under the provisions of the Selective Service Act recently passed by the Congress seek commissions at once. In this way, they will secure the $100.00 additional pay to medical officers who voluntarily request commission in the Armed Forces. When a medical officer is ordered up for induction he no longer is eligible for the $100.00 per month bonus.

It is hoped that this information will clarify for the medical profession of Missouri the work of Procurement and Assignment Service.

THE COUNCIL

The Council met at the Sheraton Hotel, St. Louis, on September 16, 17, 1950, with E. C. Bohrer, M.D., West Plains, Vice Chairman, presiding.

Those present were Drs. Donald M. Dowell, Chillicothe; W. F. Francka, Hannibal; Otto W. Koch, Clayton; J. F. Jolley, Mexico; R. W. Kennedy, Marshall; Victor B. Buhler, Kansas City; W. S. Sewell, Springfield; E. C. Bohrer, West Plains; Frank W. Hall, Cape Girardeau; W. A. Bloom, Fayette; C. Edgar Virden, Kansas City; H. E. Petersen, St. Joseph; C. E. Hyndman, St. Louis; R. E. Schlueter, St. Louis; F. T. H'Doubler, Springfield; Wallis Smith, Springfield; Robert Mueller, St. Louis; Buford G. Hamilton, Jefferson City; Mr. Lemoine Skinner, St. Louis; Mr. D. E. Caywood, Springfield; Mr. John G. Miller, Mr. Raymond McIntyre and Mr. T. R. O'Brien, St. Louis.

Crusade for Freedom

Dr. Bloom read a letter from the Crusade for Freedom which explained the movement for a Free Europe and members present signed a scroll and contributed to the movement.

St. Louis Medical Society Executive Secretary

Mr. John Guy Miller, new Executive Secretary of the St. Louis Medical Society, was introduced to the Council.

State Fair Exhibit

Mr. McIntyre reported on the exhibit at the Missouri State Fair which was sponsored by the Committee on Health and Public Instruction. He explained that the exhibit was one of ten in a group arranged by the Missouri Health Council and was located in the Educational Building. He said that approximately 5,000 pieces of literature furnished by the Educational Campaign of the American Medical Association were distributed. A picture of the exhibit was shown. Exhibits by the Association were discussed by Drs. Dowell, H'Doubler and Bloom and on motion of Dr. Bloom it was recommended that the Committee on Health and Public Instruction consider a larger exhibit for next year.

National Cancer Hospital

A letter from the Better Business Bureau was presented which explained that a campaign being carried on for funds for a National Cancer Hospital in Detroit had been investigated by the Bureau and that such a hospital did not exist.

Care of the Indigent

The action of the Council in regard to Dr. Hamilton's request that there be more adequate medical care of the indigent in the state was reviewed. Dr. Buhler reported that the committee appointed had met but that no working plan had been forthcoming, principally because there was not sufficient instruction to the committee as to its duties. Dr. Buhler explained that it had been suggested that the Sixth Councilor District be the first objective. After discussion by Drs. Kennedy, Virden, Sewell, Bloom, Dowell and Petersen, it was decided that the issue must be made clearer and that then an understanding of it by physicians in the various areas was necessary before any constructive work could be done. It was suggested also that information be obtained about all individual county indigent care programs now in operation. Upon motion of Dr. Bloom, the matter was referred back to the committee for further study and further conference with Dr. Hamilton.

Procurement and Assignment

Mr. O'Brien reviewed the confusion that had occurred in connection with the appointment of a chairman for the state in Procurement and Assignment, whether the prerogative was with the Governor of the State, the American Medical Association, the Missouri State Medical Association or federal. It was reported that because of this confusion, the officers of the Association responded to a request that the Association submit three names to the American Medical Association for selection of a chairman. The Council approved this action of the officers. It pointed out that Dr. Robert

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Mueller originally had been appointed by Dr. Hamilton as chairman on Civilian Emergency Defense in Missouri. Dr. Mueller resigned this appointment and accepted the work of chairman for the state in Procurement and Assignment until such time as this became official.

The calling of physicians into service was discussed in connection with information from the Fifth Army Headquarters, the recently enacted Physician-Draft bill (digest published in the October issue of THE JOURNAL), releases from the Department of Defense in Washington and the experience at present in the state. Mr. O'Brien said that information had been given on men who had been reported to the Association office, but that in many cases men were called before they were reported. A recent meeting in Chicago of officers of state associations was reported by Drs. Bloom, Petersen and Mueller. It was reported that they were told by military men that one reason for the seemingly illogical calling of men was that the new law could not become effective for at least ninety days and that "the Army needed physicians yesterday, not tomorrow."

Upon motion of Dr. Virden, it was voted that the Council petition the American Medical Association immediately to set up machinery to clear up the situation and that it be pointed out to the Secretary of Defense the confusion and injustices occurring in the calling of men. Dr. Mueller discussed the work and the limitations of Procurement and Assignment, pointing out that it had no legal status and that it was merely advisory and that the military administration was not obligated to accept its advice. (Explanation published in the October issue of THE JOURNAL.)

Civilian Medical Defense

It was reported that much of the meeting in Chicago was devoted to Civilian Defense but discussion on this was deferred until Dr. Carrol P. Hungate, Kansas City, could be present on Sunday.

On motion of Dr. Buhler, Dr. Hungate was appointed chairman of the Association's committee on Emergency Civilian Medical Defense.

Committee on Constitution and By-Laws

Mr. O'Brien reported that there has been a meeting of the Committee on Constitution and By-Laws and that the committee was working on a report to the House of Delegates. He presented a bill for legal work done prior to the last session which the committee recommend be paid. On motion of Dr. Petersen, the bill was approved.

Treasurer's Report

Dr. Hyndman reported on the finances of the Association and suggested that discussion be delayed until the November meeting of the Council when the budget for 1951 would be discussed. His report was accepted.

Program for 1951 Annual Session

Dr. Buhler presented a résumé of the program for the 1951 Annual Session. He reported that color television again would be sponsored by Smith, Kline and French and that television would be presented each morning of the session on surgical subjects, followed by presentation of addresses by out of state speakers; each afternoon medical subjects would be presented in the first part of the session, followed by papers by out of state guest speakers. The program was approved.

Dr. Buhler announced that subsequent to previous action of the Council, technologists had been invited to meet at the same time as the Association and that this would be decided at a meeting of technologists in October. Dr. Buhler asked advice of the Council in inviting secretaries and assistants in physicians' offices to meet or attend the session. After discussion, this was left by motion to the discretion of the program committee to decide after consideration of what program might be arranged for them.

Dr. Buhler said that the Missouri Heart Association wished to meet on the Sunday prior to the Association meeting and wished approval of their meeting, also if possible financial assistance in a speaker for the meeting. It was decided that the Association should not give financial help but should approve the meeting.

Field Secretary's Report

Mr. McIntyre reported that the following meetings would be held this fall: Councilor District afternoon and evening meetings of the 10th District at Cape Girardeau on October 5; 1st District at Maryville on October 9; 2nd District at Hannibal on October 19; 5th District at Columbia on November 2; 9th District at Lebanon on November 2; 8th District at Mount Vernon on November 9; 6th District at Sedalia on November 30. Missouri Academy of General Practice evening meetings in cooperation with Washington University School of Medicine at Springfield on September 14 and 28, October 19 and 26, and at Sikeston on October 19, November 9, and December 7 and 14; in cooperation with the University of Missouri School of Medicine at Chillicothe on September 14 and 28, October 26 and November 9; in cooperation with St. Louis University School of Medicine at both Hannibal and Jefferson City on September 14 and 28, October 26 and November 9; in cooperation with the University of Kansas School of Medicine at Nevada and Sedalia on October 19, November 2 and December 7 and 14. He announced that the Missouri Health Council will meet in Jefferson City at the Governor Hotel on October 4 with the principal subject being "School Health" led by Mr. John Bracken of the Clayton school system.

Mr. McIntyre reported that forty physicians had located in rural areas since the first of the year, making approximately 400 located in rural areas since the close of World War II.

A. M. A. Dues

Lists of physicians in each county who had not paid 1950 American Medical Association dues were given the respective Councilors. It was explained that in 1950 membership dues did not include the *Journal of the A.M.A.* but that in 1951 subscription to the journal would be included in the membership dues. Fellowship was discussed at the San Francisco session of the A.M.A. and the proposed continuation of fellowship with small dues will be acted on at the Cleveland Interim Session. It was pointed out that members would be dropped as of December 31, 1950, and that members who had not paid dues in 1950 would not be accepted as members in 1951.

After discussion, the headquarters office was instructed to send bills for A.M.A. dues separate from those for county society and Association dues.

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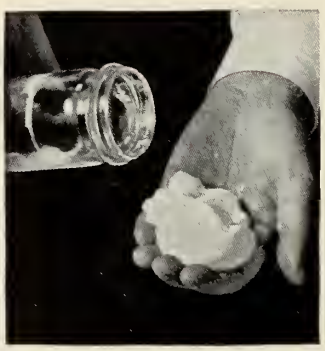
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the A.M.A. was read: "A Service Fellow is not required to pay the 1950 membership dues of $25.00 to the American Medical Association unless he is, in addition to being a Service Fellow, also a member of a component county and constituent state medical association. Service Fellowship does not require membership although some Service Fellows have elected to be both."

A. M. A. Advertising Campaign

Material which the A.M.A. is using in connection with the nationwide advertising which will appear in newspapers and magazines on October 11 was presented by Mr. Skinner. He said that the response essentially was good and that newspapers were asking for additional kits which were being furnished. He pointed out that newspapers were selling additional tie-in advertising but that this would not influence editorial expression in many cases. He said that county medical societies would be asked in many cases to advertise and that there were two angles to this: one, that they had already contributed in making the A.M.A. advertising possible, the other, that an advertisement would put them on record with many businesses as opposing socialized medicine.

Legislation

Mr. O'Brien pointed out that there will be seventeen members of the Missouri Senate elected at the November election and 154 members of the House. He said that he felt there would be much legislation in this session in which the Association would need take action. The progress and final killing of a hospital licensing law in the last session was reviewed and it was decided that such a law should be studied for possible introduction in the next session.

Dr. Hamilton announced a meeting on October 18 with the Board of Medical Examiners and others when this would be discussed.

Councilor Districts

Dr. Dowell reported for a committee appointed to study redistricting because of convenience of some counties meeting with counties in another district. The committee recommended that Ray County be transferred from District 1 to District 6 and Linn County from District 2 to District 1. Upon motion of Dr. Petersen, the Council was instructed to present this recommendation to the House of Delegates.

Membership Questionnaire

Information for the use of Procurement and Assignment Service and for Councilors was discussed. It was felt that full information was needed on all physicians in the state such as was obtained by the Committee on Medical Preparedness prior to World War II. After discussion it was decided upon motion of Dr. Hall that the Association should send out a questionnaire to all physicians in the state.

Civilian Medical Defense

Dr. Petersen reported further on the meeting on Civilian Defense which was held September 10 in Chicago. He pointed out that physicians have only an advisory capacity in this work since it covers such a vast field as transportation, communications, water supplies, housing and many other phases. He said that local governments had the primary responsibility but that in case of disaster, various parts of the state would have to cooperate—a specific example might be where one town would require disaster relief which would be furnished by one or more other towns in the state—and therefore there is a statewide cooperative responsibility, the federal government's responsibility being less. Dr. Carroll P. Hungate was introduced and told of some of the work that was begun about nine months ago in Kansas City, an outline of which is to be presented to the city manager on October 1. He explained three phases of disaster work: The ordinary disaster is cared for by the Red Cross alone; disasters as tornado, floods require the aid of other groups such as the medical profession and assistance in housing; major disasters which require the assistance of the whole community and possibly adjoining communities. He explained that Civilian Defense must be planned on the basis of a major disaster and they are using the profession and allied groups to form teams for furnishing medical care. In this work older physicians who are not likely to go into service and especially general practitioners are forming the nucleus of these teams. He pointed out that this cannot be on a city basis since in Hiroshima there were thirty-six physicians of 239 alive after the bombing. Also, that as in Kansas City with some of the metropolitan area being in Kansas, states must work together. Dr. Hungate made it clear that a Civilian Defense program must be departmentalized with sections on various things, one of them being medical. He said that a survey for evacuation, feeding and housing has been made in Kansas City and that a location for a communications center is being sought not closer than seventy-five miles to Kansas City.

Dr. Hungate stated that a master plan which can be used as a guide for cities and counties would be made available within the near future.

On motion of Dr. Virden, it was voted that expenses of the committee members would be paid by the Association. Dr. Hungate was assured that he could call upon Councilors to assist in the work and that Mr. McIntyre would assist.

BOOK REVIEW

UROLOGICAL SURGERY by Austin Ingram Dodson, M.D., F.A.C.S., Richmond, Virginia. Professor of Urology, Medical College of Virginia; Urologist to the Hospital Division, Medical College of Virginia; Urologist to Crippled Children's Hospital; Urologist to St. Elizabeth's Hospital; Urologist to St. Luke's Hospital and McGuire Clinic. With contributions by Randal A. Boyer, M.D., Douglas G. Chapman, M.D., F.A.C.P., Fred M. Hodges, M.D., F.A.C.R., T. Leon Howard, M.D., F.A.C.S., Guy Winston Horsley, M.D., F.A.C.S., Linwood D. Keyser, M.D., F.A.C.S., Robert B. McIver, M.D., F.A.C.S., Charles M. Nelson, M.D., Williams E. Pembleton, M.D., George C. Prather, M.D., F.A.C.S., James H. Semans, M.D., F.A.C.S., and Lawrence O. Snead, M.D., F.A.C.R. Second Edition, with 645 illustrations. C. V. Mosby Company. St. Louis. 1950. Price $13.50.

This second edition has been revised to include the more recent advances in urology. The chapters on "Preoperative and Postoperative Care," "Renal Tuberculosis," "Injuries of the Kidney," "Neurogenic Disease of the Bladder" and "Ureterointestinal Anastomosis" have been rewritten. This book is an excellent surgical reference on the more common problems which arise in urologic practice. M. A.



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1. *Withering, W.:* An account of the Foxglove, London, 1785.
2. *Rimmerman, A. B.:* Digilanid and the Therapy of Congestive Heart Disease, Am. J. M. Sc. *209:* 33-41 (Jan.) 1945.

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1. King, E. Q.; Lewis, C. N.; Welch, H.; Clark, E. A., Jr.; Johnson, J. B.; Lyons, J. B.; Scott, R.B., and Cornely, P. B.: J. A. M. A. 143:1 (May 6) 1950.

2. Herrell, W. E.; Heilman, F. E.; Wellman, W. E., and Bartholomew, L. A.: Proc. Staff Meet. Mayo Clin. 25:183 (Apr. 12) 1950

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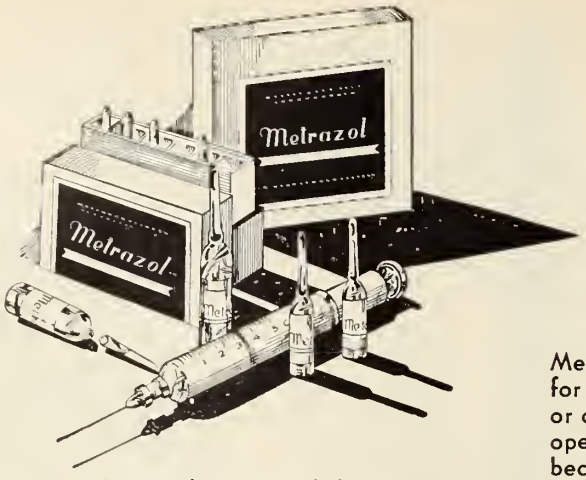
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Entered as second-class matter, February 18, 1925, at the Post Office at Fulton, Missouri, under the Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Section 1003, Act of October 3, 1917, authorized July 30, 1918. Printed by The Ovid Bell Press, Inc., Fulton, Missouri.

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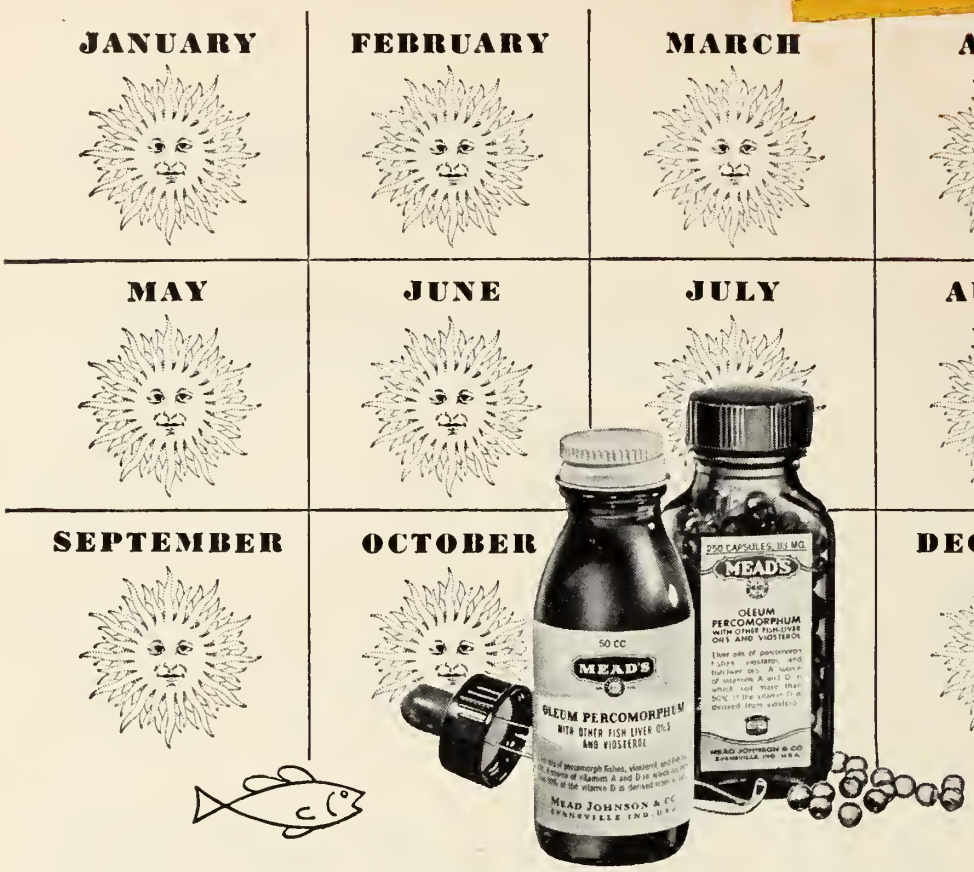
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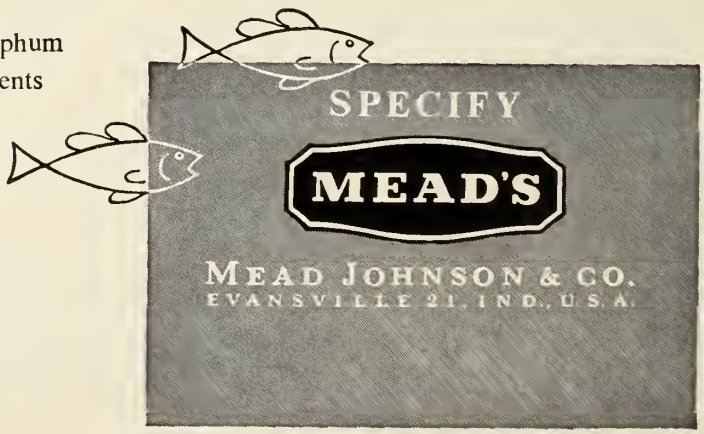
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Vol. 47 **NOVEMBER, 1950** **No. 11**

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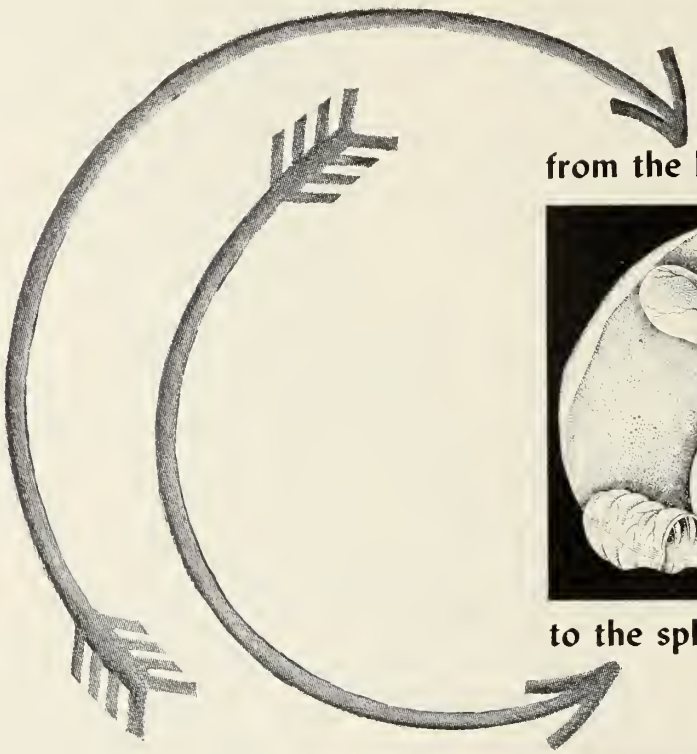


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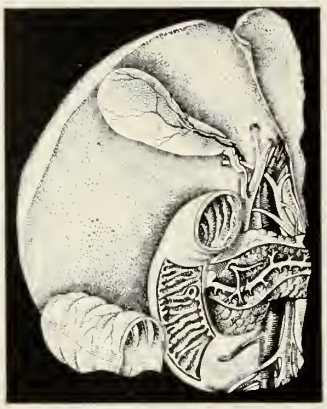
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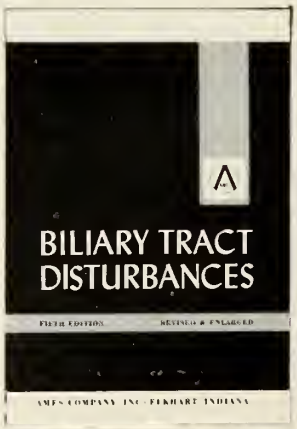
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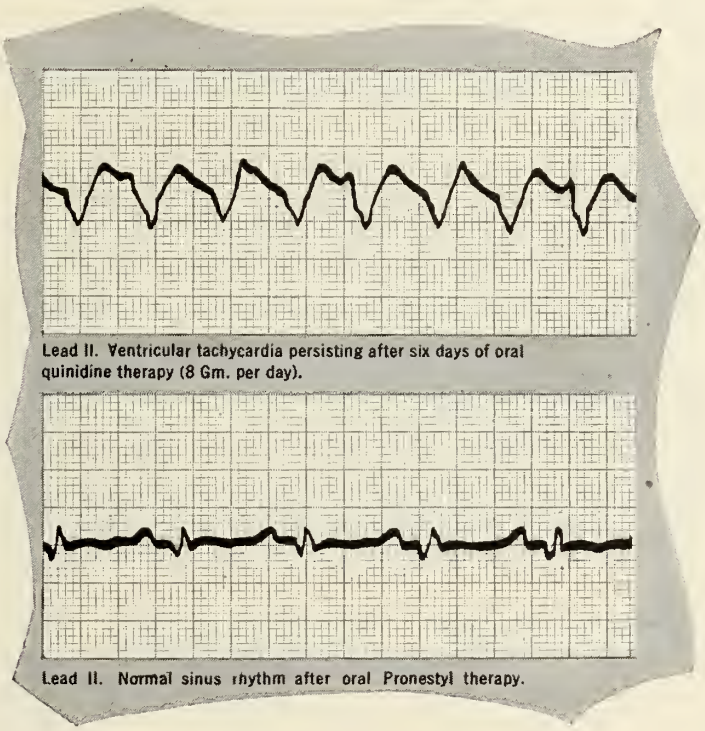
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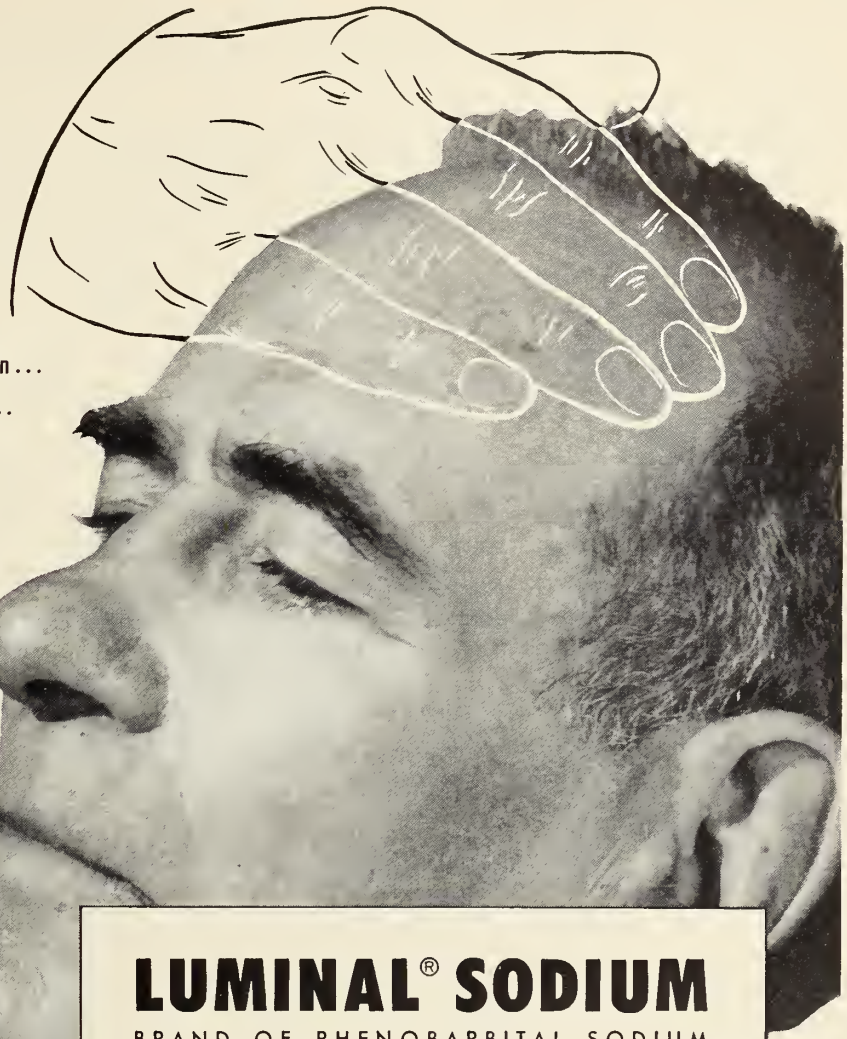
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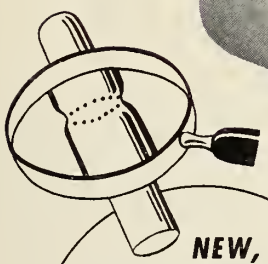
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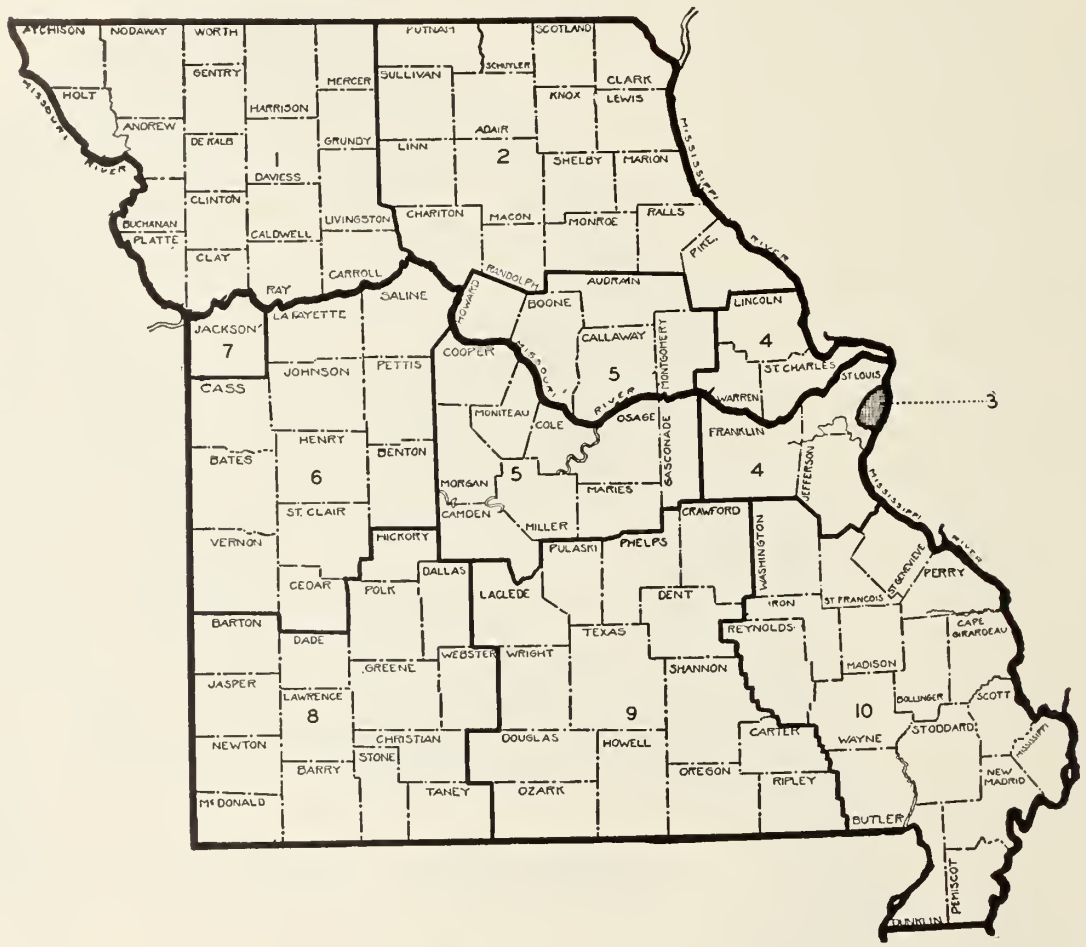
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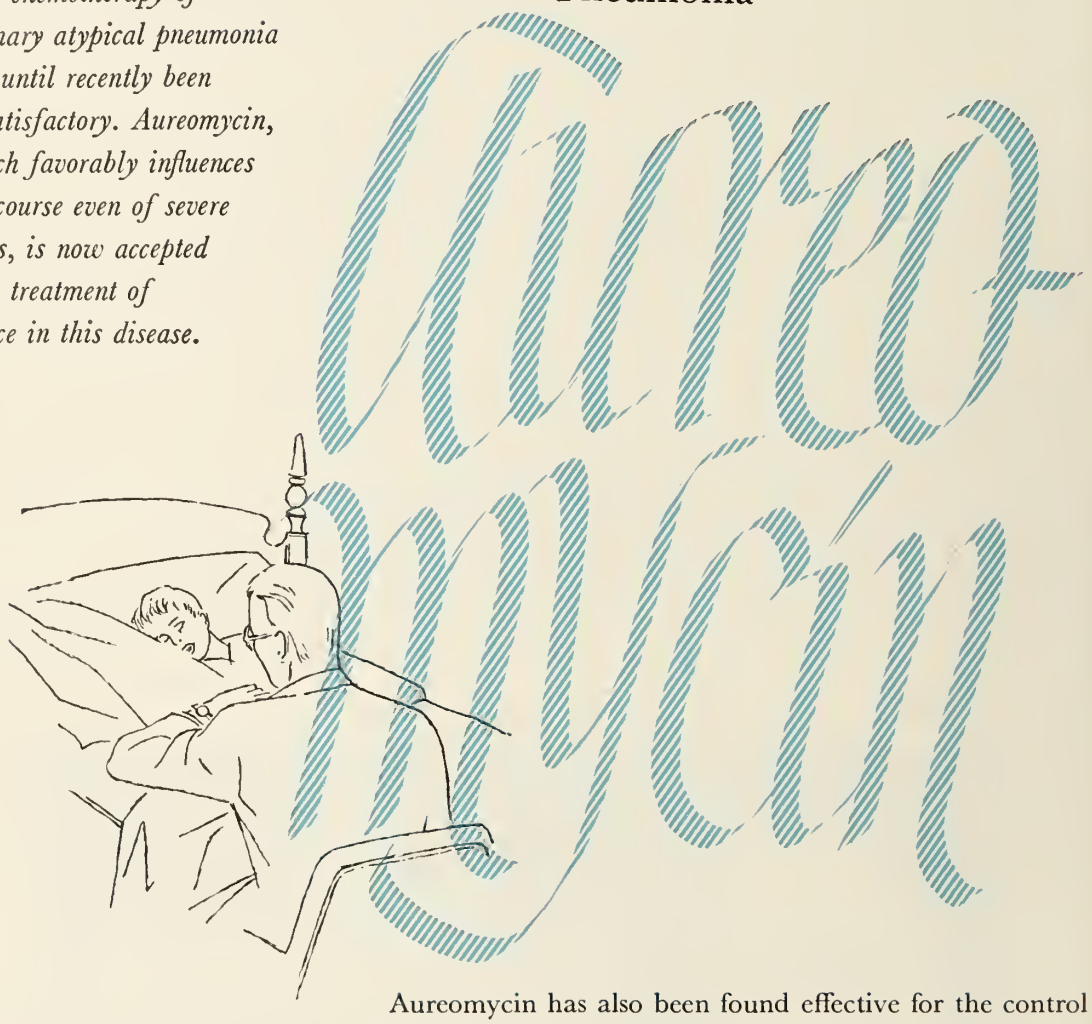
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Volume 47 November, 1950 Number 11

Scientific Articles

RECENT CONCEPTS OF RHEUMATOID ARTHRITIS

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ST. LOUIS

With the recent work of Hench, Kendall and others,[1] arthritis is playing a leading role in medical literature today. The press also is headlining it; and rightly so, because rheumatism in its broad sense causes more man hours lost than any other disease, yet it is not spectacular because it is not a killing disease. The hopelessness of the arthritic cripple, which was the view not only of the laity but of the profession in the past, is now being challenged by the tremendous amount of investigative work and study given to this condition. Rheumatoid arthritis, always the most crippling from the joint standpoint, has been shown to be a disease with a potential reversibility in which joint changes can revert back to normal or nearly normal both spontaneously and therapeutically. The dramatic reversal of joint changes seen following foreign protein therapy in an occasional case, starvation, surgery and especially anesthesia, pregnancy and hepatitis with jaundice show that in many cases of rheumatoid arthritis a hopeless cripple is not the end result.

Rheumatism in its broad sense is a member of a little understood group of diseases which include rheumatic fever, rheumatoid arthritis, gout, fibrositis, glomerulonephritis, disseminated lupus erythematosis, periarteritis nodosa, dermatomyositis, scleroderma and perhaps others. Frequently, there are similarities both clinically and pathologically. For the proper working basis both in regard to prognosis and treatment, a proper classification of the rheumatoid diseases is essential. I believe the following is a simple yet fairly inclusive classification:

1. Rheumatoid fever (acute rheumatism).
2. Rheumatoid (type) arthritis: (a) etiology known (specific infection), (b) associated with other diseases (lupus erythematosis, psoriasis, periarteritis nodosa), (c) etiology unknown (most frequent and common type).
3. Osteo-arthritis.
4. Gout.
5. Palindromic rheumatism (resembles rheumatoid arthritis).
6. Intermittent hydro-arthrosis of joint.
7. Reflex dystrophy of upper extremity (shoulder-hand syndrome).
8. Spondylitis: (e) ankylosing spondylitis (Marie Strumpell), (b) osteo-arthritis of spine.
9. Nonarticular rheumatism (fibrositis).

The pathologic changes in various forms of rheumatism have certain features in common. Articular cartilage, capsule and synovial membrane are all mesenchymal. They are connective tissue. The more recent pathologic studies have tended to bring to light resemblances rather than differences among the clinical types. Klinge[2] in 1933 said the basic lesion of rheumatism was fibrinoid degeneration or fibrinoid swelling. The lesion involves the collagen bundles of mature fibrous tissue. The fibers swell and undergo a granular degeneration and fragmentation while, at the same time, there is exudation of fibrin-rich plasma into the tissue spaces. Others have regarded as primary a degeneration of the ground substance of the mesenchyme. This is a jelly-like substance existing in the interstices between cells and fibers of connective tissue. Hyaluronic acid is an important constituent of this jelly-like substance. It is a mucopoly saccharide and it has been isolated from skin, vitreous humor, umbilical cord and synovial fluid. The general pathology of rheumatism may be summed up in these five processes: necrosis, exudation, proliferation, infiltration and fibrosis.

Another feature constantly seen in rheumatism of all types is vascular disease. This affects all coats of the vessel and produces any combination of four cardinal changes: (1) deposition of amorphous fibrinoid material in the intima; (2) degeneration of the media with fragmentation of the elastic fibers; (3) proliferation of fibrous tissue cells loosely arranged around the periphery of the vessel;

Read before the Greene County Medical Society, Springfield, March 1949.

(4) infiltration of some or all coats of the vessel with lymphocytes, plasma cells, neutrophils and eosinophils. In rheumatoid arthritis, the change in the joint is prominent and differs from rheumatic fever inasmuch as the changes frequently are irreversible. There is congestion of the synovial membrane and edema and thickening at its junction with the articular cartilage. The fibrous tissue and capillaries of the membrane proliferate and throw out an advancing pannus of granulation tissue which spreads over the cartilage from its periphery. This can go on to destroy the cartilage with resulting adhesions, first fibrous and then bony ankylosis may develop. Rosenberg, Baggenstoss and Hench[3] reported a series of thirty necropsies in cases of rheumatoid arthritis in which sixteen showed evidence of rheumatic heart disease. They found endocarditis, Aschoff bodies and scars in the myocardium and pericardium, all showing the features associated with rheumatic fever. Freund and his coworkers[4] showed small nodules in the skeletal muscles of patients with rheumatoid arthritis. These nodules were distant from the involved joints and showed collections of plasma cells, lymphocytes and epithelial cells with a small central zone of necrosis. They were usually perivascular. In gout, it is questionable whether or not uric acid crystals are deposited in sound tissue. Clinical gout in my experience may resemble rheumatoid arthritis, osteo-arthritis or fibrositis and may respond to antigout therapy. The subcutaneous nodes found in both rheumatoid arthritis and rheumatic fever are not too dissimilar. The tophi of gout are not too different pathologically. If one adds to the foregoing the pathologic changes in fibrositis, I believe that one can say that the pathologic picture of rheumatoid arthritis, rheumatic fever, gout and fibrositis show rather close resemblances.

Osteo-arthritis affects only joints. The lesions are not disseminated in other tissues as in rheumatoid arthritis and the general constitutional symptoms are minimal. Osteo-arthritic changes may be found as secondary phenomena in joints which are the subject of trauma, trophic changes in nerve diseases, infection of any kind, rheumatoid arthritis, allergy or gout. The disease is degenerative and hyperthrophic. The cartilage and bone are primarily affected, the soft tissues being involved later and to a less extent. The earliest and primary lesion is a degeneration of the hyaline articular cartilage. Erosion appears irregularly over the weight bearing central zone and bony surfaces are exposed. The peripheral zone of cartilage nourished by a good blood supply shows a reaction of proliferation rather than degeneration. Ankylosis does not occur and the exposed bony surfaces show sclerosis and eburnation. The cartilage at the periphery of the joint proliferates and irregular outgrowths occur, first cartilagenous and later osseous. The joint capsule undergoes thickening and expansion and adapts its shape to the new size of the joint. Capsular fibrosis may be extreme. The synovial membrane may be normal or irregularly thickened. No pannus or massive effusion occurs. It is the opinion of some that the symptoms of osteo-arthritis, in many cases, are due to the associated fibrositis.

In fibrositis there is congestion, serofibrinous exudate and, later, fibrosis. The painful spots are collections of fatty tissue enclosed in well defined compartments with tough fibrous walls. Painful spots may be due also to localized muscle spasm. Copeman[5] showed that the nodules found at times histologically are not unlike those found in skeletal muscles of rheumatoid arthritis, showing small foci of perivascular lymphocytes.

Ankylosing spondylitis (Marie Strumpell) shows early and progressive involvement of spine and sacro-illiac joints spreading later to hips and shoulders and occasionally involving peripheral joints. It resembles rheumatoid arthritis but some consider it a different disease entity. The pathology of ankylosing spondylitis is dominated by osteoporosis involving the vertebral bodies with ossification of ligaments which appears early and is rapidly progressive. The anterior spinal ligament is first involved and the intervertebral and costovertical ligaments are affected later. Degeneration of the intervertebral discs occur and they are replaced by spongy bone from the vertebral bodies which become continuous through the discs. The process usually starts in the sacro-iliac joints and works upward. The hip joints are especially liable to be involved and flexion deformities develop.

Gout can resemble other types of rheumatism. It results from or is associated with the deposition of monosodium urate crystals in the articular cartilage, capsule or fibrous tissue. Nucleo-proteins of endogenous or exogenous origin are split up into phosphoric acid and purine base. The metabolism of the latter produces uric acid. A raised blood uric acid level alone does not give rise to gout. Large subcutaneous tophi give no more evidence of an inflammatory reaction than do the subcutaneous nodules of rheumatoid arthritis which they resemble.

Following are some of the points in the differential diagnosis of rheumatoid arthritis and other forms of rheumatism. The x-ray in the early stages is not of much help. As the disease progresses one may get x-ray shadows of swollen periarticular soft tissues together with some decalcification of bones. Later destruction of cartilage is recognized by the narrowing of the joint space and the erosion of bone by irregularity of the articular surfaces and punched out areas. In the final stage the joint is seen to be completely disorganized with bony lipping and osteophyte formation indicative of secondary osteo-arthritic changes. The blood shows an increased sedimentation rate. There is usually a slight to moderate hypochromic anemia. The blood chemistry findings are usually uninformative. Agglutination, precipitation and skin tests suggest that hemolytic streptococcal infections occur in patients with rheumatoid arthritis and rheu-

matic fever more frequently than in the rest of the population. The diagnosis of rheumatoid arthritis can be difficult at times and some months may elapse before a positive diagnosis can be made in some cases. Other rheumatic conditions that can be confused with rheumatoid arthritis are: (1) rheumatic fever, (2) gout, (3) specific infectious arthritis of the rheumatoid type, chiefly gonococcal arthritis, (4) palindromic rheumatism, (5) periarticular fibrositis, (6) reflex dystrophy of the upper extremity (shoulder-hand syndrome) especially in incomplete form affecting the hand without much involvement of the shoulder. Palindromic rheumatism and fibrositis may be early forms of rheumatoid arthritis.

Rheumatic fever generally occurs in a younger age group. The joint involvement does not follow the typical joint distribution of rheumatoid arthritis. The constitutional symptoms as a rule are more severe. There is generally a rather marked response to salicylates and there are no joint residuals. Early cardiac involvement is usually seen in rheumatic fever.

In periarticular fibrositis, the disease is generally limited to one or a few joints. There are no constitutional symptoms. The blood count is normal and the sedimentation rate is usually normal or only slightly elevated. The symptom complex is difficult. In fibrositis, the general health of the individual is good and the symptoms are out of proportion to the appearance of well being of the individual. The pain and stiffness complained of in fibrositis occur when the joints are at rest and improve with movement, while the pain and stiffness in rheumatoid arthritis are aggravated by activity and improve with rest.

When arthritis starts in one or more large joints or the involvement of joints begins asymetrically, the diagnosis of rheumatoid arthritis should never be made until the possibility of specific infectious arthritis, chiefly gonococcal or gout, has been eliminated. Gonorrheal arthritis may have clinical features identical with those of classical rheumatoid arthritis and, more usually, the disease affects initially the knees, ankles and wrists rather than the small joints of the hands and feet. A search should be made for gonococci in urethral, cervical and prostatic secretions. The gonococcal complement fixation test is positive in 80 per cent of cases but generally does not appear before the end of the fourth week. Gout occurs much more frequently than previously thought. In a series of cases I recently reviewed, it was my opinion that gout resulted in the clinical picture of rheumatoid arthritis, osteo-arthritis and fibrositis and was not superimposed on them. Gout frequently affects the big toe but often ankles, hands and wrists are first affected and then knees, shoulders, hips and, finally, the spine. The early attacks last a comparatively short time but as the disease progresses, the attacks lengthen. Typical early attacks are ushered in with redness, swelling and pain in one or more joints lasting from a few days to several weeks and then subside leaving a few joint residuals, only to recur after a variable length of time in the same or other joints. The free intervals between attacks may be from several months to a few years in the beginning. With the increasing duration and severity of attacks there is a tendency to polyarticular involvement and to more marked constitutional disturbances. The blood uric acid tends to rise before an attack and the urinary output and urinary urates fall. As the disease progresses and becomes chronic tophi have usually appeared in the peri-articular tissues and add to the joint deformity and the picture is one of deforming arthritis. Gout can occur in a few instances in women.

The next important condition in which rheumatoid arthritis might be confused is reflex dystrophy of the upper extremity (shoulder-hand syndrome). It must be kept in mind that this condition can occur in an incomplete form in which the hand is involved with little or no involvement of the shoulder, and vice versa. The condition is often bilateral. In the beginning, there is a painful shoulder disability followed by swelling, pain and stiffness of hands and fingers. The onset may be gradual or sudden. It may start in the shoulder or hand or both at once. There is pain and limitation of movement of the shoulder girdle with diffuse tenderness much as in periarthritis or bursitis. The swelling of the hands and fingers is uniform and not localized in the metacarpal-phalangeal or interphalangeal joints. This is followed by relief of pain in the shoulder and the swelling in the hand. The stiffness and flexion deformities in the hands may become more pronounced. Then atrophy of the muscles and tissues sets in and osteoporosis of the bones is seen in the x-ray. As the disease progresses, irreversible changes occur and progression of the trophic changes in the hand are seen. It is a neurocirculatory disorder effected through the autonomic nervous system. The mechanism has been explained as a disturbance of the internuncial pool in the central gray matter extending over many segments. At these levels connecting pathways are formed between incoming impulses and motor neurones of either the sympathetic (posterolateral) or anterior horn cells. Empirically, interruption of the sympathetic nerve supply to the limb relieves pain, resolves the signs and restores function in the majority of cases with impressive rapidity. The condition may come on without any apparent reason or it may follow an external or internal trauma. The common internal traumatic conditions leading to this condition are myocardial infarction, hemiplegia, thrombophlebitis or conditions leading to subclinical shock.

ETIOLOGY

While the etiology of rheumatoid arthritis is still unknown, hopes are greatly raised due to work with ACTH and Cortisone. It is generally conceded that rheumatic fever follows an attack of

hemolytic streptococcal infection and the evidence is suggestive that the hemolytic streptococcus plays a part in rheumatoid arthritis, possibly initiating some process that produces the disease. Salicylates inhibit the precipitation of antigen by antibody formation. The relief of some rheumatic conditions by salicylates may result from these facts. Salicylates apparently do not affect the evolution of the permanent pathologic changes in rheumatic fever. A new hypothesis involving the immune reaction has recently attracted attention. It is suggested that in rheumatic patients antibodies are formed against artificial antigens consisting of denatured proteins of their own tissues or of tissue proteins combined with some streptococcal or other material. The antibodies are capable of combining with the original undenatured or uncombined tissue protein and clinical symptoms result whenever their titer is high enough to permit their combining with and damaging the tissues in question. The most exciting and possible theory is the following: Hyaluronic acid is a mucopolysaccharide which has been isolated from skin, synovial fluid, mesenchymal tumors and vitreous humor and is an important constituent of the ground substance of connective tissue. Hyaluronidases are enzymes and they may be obtained from streptococci, staphylococci, pneumococci, clostridium welchii and testicular tissue. Hyaluronic acid is an important constituent of connective tissue, the seat of the rheumatic process. Hemolytic streptococci produce hyaluronic acid and hyaluronidases. A speculative point is the possibility that during the initiating infection, the hyaluronic acid in the capsule of the invading streptococci may act as a hapten and may give rise to formation in the patients of antibodies to hyaluronic acid, a constituent of their own tissues. The adaptation syndrome of Selye[6] may play a part which in brief is the following: Exposure of animals to sudden stress (drugs, cold, infections) elicits the phenomena of shock. Repetition of the damaging stimulus in sublethal doses leads to the development of resistance. During this stage, the animal is resistant to the stimulus to which he has become adapted but abnormally sensitive to other damaging agents. If repetition of the stimulus is continued long enough, the adapture capacity of the organism eventually becomes exhausted and the phenomena of shock appears, leading to death.

TREATMENT OF RHEUMATOID ARTHRITIS

Rheumatoid arthritis is a general disease and affects the individual as a whole, not just the joints. Necessarily, treatment must be directed to the whole individual, both his physical and mental states. The physician should have a clear understanding with the patient in regard to his condition, the length of treatment and as near as possible his ultimate outlook. Measures should be taken so that changes in occupations can be made, changes that are adaptable to the ability of the individual. The physician should never be overly optimistic nor overly pessimistic. An accurate knowledge of the exact type of rheumatism encountered and the probable outcome is necessary. Any defect of the gastrointestinal tract that might interfere with proper digestion should be corrected. A well balanced diet adequate in calories and vitamins is essential. Correction of anemia and undernutrition should be cared for. Small repeated blood transfusions are helpful. Proper rest to the individual as a whole and to the joints involved and attention to prevention of deformities and maintenance of function are of utmost importance. Definite rest periods and definite periods of exercising and activity should be prescribed, remembering a happy medium must be sought between no general activities and too much activity. Individual joints must be exercised first passively, as soon as the acute inflammation has subsided, and then actively for certain increasing periods each day. The amount of pain complained of and its duration and whether the pain with increased severity occurs should be the guide to the length of time of the exercises. Massage of muscles between joints associated with the exercises should be given. In regard to physiotherapy, complicated and expensive apparatus is not necessary. Local heat in the form of light bulbs and pads will suffice. One of the best physiotherapeutic measures at home is the hot tub soak. The individual, when able, should be placed in the tub and the time in the tub and the temperature increased as tolerated. While in the tub, the individual should be encouraged to move his joints. Deformities result when the parts are in flexion and this should be avoided. A proper bed is flat with a board under the mattress to prevent sagging so that the patient may rest in correct posture with joints extended. It is easier to prevent than correct deformities. When flexion deformities have occurred, then the problem is chiefly orthopedic and it is not within the scope of this paper to go into orthopedic problems related to deformities.

Salicylates are the drugs of choice and probably the best analgesic there is in rheumatism. Barbiturates combined with salicylates are helpful as they seem to have a synergistic effect. Codeine is often necessary.

In conjunction with this, gold is of some value and at least deserves a trial. It is of help in some cases and a knowledge of its use and careful attention to dosage makes the danger from toxicity negligible. The mode of action of gold in arthritis is unknown. Some believe it has bacteriostatic properties; others hold that it stimulates the recticulo-endothelial system or alters the immunologic mechanism. Dosage varies and, in general, the large doses originally given are replaced by smaller doses given over a longer period of time as it is known that gold is accumulative and stays in the system, thus making toxic reactions more frequent. Colloidal gold is of no value. One should be cautious in giving so-called new remedies of unproven benefit and unproven toxicity. Remember that the sufferer of rheumatoid arthritis is

hopeful and in many cases will feel better for a while after the institution of any new procedure, especially if the operator is enthusiastic about it.

Hench and Kendall were impressed with the fact that rheumatoid arthritis was improved following operations and a general anesthetic, both of which are capable of stimulating the adrenal cortex. This led to the development of compound E or Cortisone which is 17 hydroxy 11 dehydrocorticosterone, one of the adrenal cortical steroids, and the adrenocorticotrophic hormone of the pituitary, ACTH. Dramatic improvement followed the use of these hormones in rheumatoid arthritis, reported by Hench and his coworkers and other groups of investigators. The work done with these hormones by the different investigators make these facts apparent: (1) that the fundamental process by which adrenocortical steroids affect this disease is unknown and unmeasured in terms of the known metabolic functions of the adrenal cortex, and (2) that although the use of ACTH and Cortisone in human patients may result in dramatic remissions of these diseases, such use may be attended with serious complications.

Some of the complications that have arisen so far from the use of these hormones are hirsutism, diabetes in those susceptible to developing diabetes, excited agitated state in certain individuals and Cushings syndrome.

The whole subject is most exciting and probably will play a big part, if not in the treatment, in enlightenment on the pathologic physiology of many diseases. The whole group of so-called collagen diseases seem to be benefited and also those diseases in which allergy in its broad sense seems to play a part.

So far these substances seem to be of probable value in: (1) hypopituitism, (2) Addison's disease, (3) allergy, (4) certain eye conditions, (5) nephrotic syndrome, and (6) rheumatic fever.

They seem to be of questionable value in: (1) rheumatoid arthritis, (2) lupus erythematosis disseminata, (3) periarteritis nodosa, (4) nephritis, (5) lymphomas, and (6) pneumonia.

In early rheumatic fever they seem to be of definite value. They may prove to be of definite value in early rheumatoid arthritis in which interrupted doses of short periods, small enough to prevent complications, may be given so that the disease process may be arrested, allowing the defense mechanisms of the body to overcome the disease.

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CARCINOMA OF THE URINARY BLADDER

AN EVALUATION OF PRESENT TRENDS OF TREATMENT

JUSTIN J. CORDONNIER, M.D.
ST. LOUIS

CARCINOMA OF the urinary bladder presents one of the most formidable problems which confronts the physician today. For any physician who has treated a patient in the late stages of this disease and watched his futile attempts to urinate the tumor and the inevitable blood clots therefrom, while awaiting the terminal uremia and urosepsis which inevitably follow, this statement needs no elaboration. Unfortunately for both patient and physician, the final end to this situation all too frequently is prolonged.

The seriousness of this lesion is well emphasized by statistical studies such as those recently presented by Royce,[1] who surveyed ninety-five cases of grade two or above carcinoma of the bladder treated by conservative means at Barnes Hospital and found only ten alive after five years, all but two of these being in the grade two category. Victor Marshall,[2] reviewing a series of 100 cases of carcinoma of the bladder treated by total cystectomy, found only twenty-six alive and free of cancer after a period of two years. Such reports as these point all too clearly to the importance of early diagnosis and a more adequate means of treatment.

PATHOLOGY

Roughly, bladder tumors may be divided into two groups, the papillary group and the sessile or invasive type. The papillary group comprise approximately 90 per cent of the tumors and the sessile, or invasive, approximately 10 per cent. It is interesting to note that all types of papillomas of the bladder, even those which were formerly graded as benign papilloma have now come to be considered as potentially malignant. These tumors are listed as papillary carcinoma grade one. This point is well taken and should be kept in mind when considering treatment. For completeness, one should mention the rare adenocarcinoma which occurs in less than 1 per cent of the cases. This is a malignant type of lesion but, because of its rarity, needs no further consideration as its treatment is the same as for the sessile type squamous carcinoma. The papillary carcinomas, particularly those of grade two malignancy, are characterized by relatively late invasion of the muscularis and metastasize slowly. It is this type of lesion which

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responds well to conservative treatment. However, here again there are several factors which should be looked for and guarded against. In the first place, varying degrees of malignancy can occur in the same tumor and, unless a rather extensive biopsy is obtained, one may be dealing with a considerably more malignant tumor than is at first suspected.

Sections should be obtained from as near the base of the tumor as possible and should be of adequate size. It is my belief that the use of a small cup biopsy in diagnosing bladder tumors is not satisfactory. The sections should be obtained either with a McCarthy resectoscope or Lowsley rongeur. In addition, one should keep in mind that all papillary tumors have a tendency to recurrence even as long as five years after the original lesion has been destroyed. Therefore, this type of case should be kept under careful continuous observation with regular cystoscopic examination at no greater than six month intervals. Undoubtedly, all low grade papillary carcinomas are amenable to conservative treatment early in their development. However, as the lesion grows and progresses it is quite apt to undergo an increase in malignancy with a resulting increase in invasiveness.

In analysing a large series of autopsy specimens, Jewett and Strong[3] concluded that if the submucosa only was involved there was a 100 per cent chance of curability. In cases in which there was involvement into but not through the muscularis, curability could be accomplished in 86 per cent, but when the tumor had invaded through the muscularis only 26 per cent could be cured.

The sessile, invasive type of carcinoma presents an entirely different problem in that by the time it produces symptoms it has already progressed deeply into the muscularis of the bladder and is not amenable to conservative treatment of any type. It is this type of tumor which requires immediate cystectomy if any hope of cure is to be obtained.

In general, metastases occur relatively late, depending upon the nature of the tumor. When they do occur they are usually to the regional lymph nodes or by direct extension along the lateral ligaments of the bladder. Most tumors are located on the base of the bladder and in the vicinity of the trigone. The cause of death is usually uremia, due to obstruction of the lower end of the ureter, and urinary sepsis. Reynolds, Schulte and Hammer,[4] in a series of 100 cases treated by transurethral removal of the bladder tumor, found invasion of the bladder neck in 50 per cent of them. This finding was attributed to the distribution of the lymphatics of the bladder and emphasizes the importance of radical treatment if one expects to accomplish much in dealing with this disease.

DIAGNOSIS

As in dealing with carcinoma elsewhere in the body, an early diagnosis of carcinoma of the bladder is essential if adequate and proper treatment is to be carried out. Unfortunately, symptoms may not develop until the disease is well advanced. Hematuria is the initial symptom in 77 per cent of the cases. Pain is the presenting symptom in a small per cent but almost invariably occurs with a fairly far advanced lesion. Obstructive symptoms may be present if the lesion is located near the vesical neck. Disturbances of micturition of a mild character are frequently the only symptom which the patient presents.

It has long been a standard practice in my office to cytoscope every new female patient. Recently, the practice of cystoscoping all males above the age of 40, with urinary symptoms, has been adopted. I believe this to be a worth while and necessary procedure inasmuch as one occasionally will pick up an early papilloma which would not be discovered otherwise. Recently, I had the experience of examining a 51 year old male with symptoms and findings suggestive of a congestive prostatitis. In my own mind I felt that this was the only condition present and certainly the findings were sufficient to account for all his symptoms. However, a routine bladder inspection, performed relatively painlessly with a No. 16 French cystoscope, revealed a small papilloma in the vicinity of the left ureteral orifice. This lesion was controlled easily by cystoscopic fulguration and no further trouble is anticipated. However, I feel definitely that had it not been discovered at this time an entirely different story might have been present in six months.

The final diagnosis can be made only by cystoscopic examination with an adequate biopsy. Rectoabdominal palpation under anesthesia is of definite value in determining the size and degree of invasion of the tumor. Both of these points are of importance in evaluating operability. In addition, I should like to stress the use of intravenous pyelography in all cases of carcinoma of the bladder. It serves a two fold purpose in that it indicates whether there is any deep seated involvement of either ureteral orifice and, also, serves to rule out the possibility of papillary carcinoma of the kidney pelvis or ureter, which is occasionally the primary lesion with secondary papillary lesions in the bladder.

In concluding a discussion of diagnosis, I would like to reemphasize one point. Hematuria should always be investigated until its source has been determined accurately. It is amazing, even with present day methods and treatment, how frequently one encounters a patient with a history of having consulted a physician with the complaint of painless hematuria for which he was given some tablets. The hematuria ceased, only to recur some six or seven months later. Unbelievable as it may seem, this is an all too frequent story.

TREATMENT

Perhaps the commonest method of treatment utilized in bladder tumors is that of fulguration or electrocoagulation using the operative cystoscope or the McCarthy resectoscope. This method of treat-

ment is particularly effective for the grade one and smaller grade two carcinomas with little or no involvement of the muscularis. These tumors definitely can be cured by this method provided metastases have not occurred and, since they tend to metastasize late, the outlook is uniformly good. In general, it is my belief that this procedure should be carried out under general anesthesia so that thorough deep fulguration can be obtained. I believe that it is a mistake to attempt this operation under local anesthesia as an office procedure. Fulguration has no value in the treatment of the invasive or sessile type of carcinoma.

Radiation therapy, consisting of either external radiation or the implantation of radon seeds, is mentioned only for the purpose of condemning it. Victor Marshall,[5] in an analysis of 291 cases of bladder malignancy treated by various types of radiation therapy, found a five year survival of only 6 per cent and pointed out that the complications of bladder calculi, chronic radiation ulceration of the skin, proctitis, hemorrhage and severe radiation cystitis far outweighed any benefits which might result. Furthermore, little if any palliation was obtained from this procedure. Colby and Sniffen[6] likewise report unsatisfactory results from this type of therapy. Rose,[7] in 1946, reported a few encouraging results from open x-ray therapy, but has subsequently abandoned that procedure in favor of cystectomy. In my experience, radiation therapy has been of no value from a curative standpoint and of little value in palliation.

Partial cystectomy, particularly when the lesion is situated on the dome of the bladder, is a tempting procedure. Drew[8] reported four five year cures out of thirty cases treated by segmental resection. Jewett and Carson[9] reported a series of fifty-five cases of segmental resection in which there were fourteen apparent cures, but noted that these were in the superficially infiltrating type of tumor which had penetrated less than halfway through the muscularis, and that the results were poor when deeper infiltration occurred. One wonders if equal results could not be obtained by transurethral resection. It is my belief that the operation of segmental resection or partial cystectomy is surgically as unsound as the removal of a breast cancer without the removal of the entire breast with axillary dissection. The lymphatics of the bladder are extensive, comprising an interlacing network which extends from the mucosa through the muscularis to the serosa of the bladder. In my opinion, anything short of a complete removal of that organ would stand a great chance of failure. It would seem that the best possibility of cure lies in the total removal of the bladder with diversion of the urinary stream.

For many years the results of uretero-intestinal anastomosis have been so unsatisfactory and the ureterocutaneous anastomoses have been so difficult to manage that urologic surgeons in general have been reluctant to adopt this procedure, feeling that the mortality and morbidity outweighed any advantages which it might offer. However, with the advent of chemotherapy, and with adequate bowel preparation prior to intestinal surgery, the operation of ureterosigmoid anastomosis has become a fairly easy one, carrying a low operative mortality and presenting some hope of fairly good late results.

During the last two and one half years, I have been particularly interested in this procedure and have developed a method of ureterosigmoid anastomosis which to date has proven unusually satisfactory. The technic of the operation was described recently in the *Journal of Urology*,[10] and the details will not be given here. Since I have been performing this operation for only a little more than two years, it is too early to evaluate the results of this cancer surgery. However, if the problem of urinary diversion can be satisfactorily solved, I will be encouraged to operate earlier and less malignant lesions, and thereby increase the chance of curing these patients. To date, cystectomy and ureterosigmoid anastomosis have been performed on a total of fifty-one patients. There has not been a single postoperative death, all of the patients having left the hospital under their own power. Fifteen of these patients have subsequently died, two from renal complications and thirteen from carcinoma. Although this figure seems somewhat high, no effort has been made to select the cases and every one whom it was thought would stand the operative procedure has been operated on, believing that the palliation obtained from diversion of the urinary stream was worth the surgery involved, even though the tumor was not cured. Experience has tended to support this belief. Practically all of the patients dying of cancer have seemed to be considerably more comfortable than those previously observed under the older methods of treatment. The palliation in these cases has been so striking that this may well prove to be one of the principal indications for ureterosigmoid anastomosis.

Early complications have been minimal. There have been no immediate cases of urinary sepsis postoperatively. Urinary output has been prompt and averaged approximately 1,200 cc. in the first twenty-four hours. There have been no immediate elevations of nonprotein nitrogen and in several instances there has been an actual lowering of the nonprotein nitrogen with a regression of hydronephrosis which existed preoperatively.

Late results have been encouraging. These patients have been quite comfortable and there has been no complaint of excessive bowel function or difficulty with bowel control. Urinary sepsis has been present in sixteen, but has been well controlled in all but two instances by chemotherapy and has become progressively less in each individual as time went on. It is believed that this finding is the result of vaccination of the individual to the organisms normally present in the intestinal tract. In many cases, in which sepsis occurred early after the transplants and at fairly frequent intervals, patients have subsequently gone as long as a year with no sepsis whatsoever. Only two cases have

developed progressive hydronephrosis, and this has not been to any great degree. Neither of these cases has shown signs of sepsis and blood chemistries have remained essentially normal.

One complication has developed which I feel is worthy of some special emphasis, namely, the late occurrence of acidosis, which was the cause of death in one of the two in whom it was felt death was directly traceable to kidney disease. In a recent article in *The Journal of the American Medical Association*, Ferris and Odel,[11] of the Mayo Clinic, noted the presence of acidosis and hyperchloremia in approximately 75 per cent of their cases done by the Coffey No. 1 method. In those cases which I have been able to follow carefully, I have found a moderately severe acidosis in approximately 65 per cent. It is believed that this is due to reabsorption of the chloride ion from the sigmoid colon, and is unavoidable irrespective of the method of transplant used. Presently, additional studies are being made in an endeavor to find out more about the chemistries involved. At present, the following methods for the control of the acidosis are in use and have proven quite successful in all instances: First the patient is instructed to empty the bowel at two hour intervals during the day. Second, the salt intake is limited to the salt used in cooking only and the patient is instructed not to add salt directly to the food. A salt free diet is unpalatable and it is felt that nutrition is too important to these patients to place them on such a regime. Third, sodium bicarbonate has been administered in doses of 4 grams three times a day, an amount which seems just about satisfactory to control the acidosis in most cases.

SUMMARY

In conclusion I believe that total cystectomy, with ureterosigmoid anastomosis, is the best hope for cure for bladder carcinoma and should be used in all cases of sessile carcinoma, in advanced grade two papillary carcinoma with deep muscle invasion, and in all grade three and four papillary carcinomas, reserving the conservative treatment for the grade one and the less advanced grade two papillary carcinomas.

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THE USE OF CALCIBRONAT* IN THE RELIEF OF ANNOYING SYMPTOMS ASSOCIATED WITH VARIOUS SKIN CONDITIONS

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Bromides as therapeutic agents in medicine have been used primarily as sedatives because of their effect on the central nervous system. Consequently, the literature abounds with references to these drugs in their application to neurologic and psychiatric problems. Over a period of four years I have applied the effects of these salts to various dermatologic conditions in which a sedative effect on the skin proper has been sought.

The application of bromides to dermatology can be understood readily when one realizes the embryologic relationship between the skin and the nervous system, both being derived from the ectoderm, and the numerous symptoms of cutaneous diseases which are associated with nervous irritation such as itching, nerve reflex hyperirritability, anxiety with itching, nervous insomnia with itching and certain types of allergic disturbances with a known psychiatric basis.

Prior to this work, various bromides have been used in order to obtain sedative effects. However their application has been limited for a number of reasons.

With the advent of calcium bromido-galactogluconate (Calcibronat) the side reactions are minimized and thus the best therapeutic effects from bromine can be employed advantageously in dermatologic therapy. Calcium in combination with bromine in this double salt affords a maximum effect of the bromine ion with a minimum of the undesirable bromine side effects as a sedative, whereas the calcium acts as an anti-inflammatory agent by decreasing cell permeability and thus counteracting exudation. In this way, the two ions act synergistically to produce maximum symptomatic relief from the symptoms associated with skin conditions such as neurodermatitis, urticaria, atopic dermatitis and various eczemas, especially the weeping and itching types. In so doing, Calcibronat as a medication has afforded the dermatologist an opportunity to study these types of skin conditions in patients who ordinarily are too unstable to remain in a doctor's care long enough for him to arrive at a specific form of therapy based on etiologic factors as the basic cause for the skin condition involved. In many cases, long before the irritation could be discovered, the Calcibronat salt in itself, by eliminating secondary trauma due to nervous irritation, has gone sufficiently far to pro-

* Calcium bromido-galactogluconate.

duce complete clearing of the skin condition. This drug has, therefore, had a twofold purpose.

I wish to acknowledge previous observations along the same line of thinking by Reuter,[1] Katz,[2] Trenk,[3] Liebner,[4] and Filippi.[5] The purpose of the present study is to add to their experiences those results obtained from studying a larger number of cases over a longer period of time.

CLINICAL OBSERVATIONS AND METHOD

Records were compiled from 150 cases, ranging in age from 18 to 75, including both sexes. Of this number of cases, sixty-five were diagnosed as neurodermatitis, twenty-two as angioneurotic edema, one as lymphosarcoma, eight as urticaria nervosa, eight as lichen simplex chronicus, seven as eczematoid dermatitis, fourteen as dermatitis herpetiformis, four as lichen planus, six as seborrhoeic dermatitis, one as contact dermatitis, nine as pityriasis rosea, two as dermatitis medicamentosa, two as dermatitis venenata and one as pruritus ani.

Table 1. *RESULTS: Summary of Findings*

DIAGNOSIS	No. of PATIENTS	ITCHING		EXUDATE		ERUPTION	
		Present in	Relieved	Present in	Relieved	Present in	Relieved
1. Neurodermatitis	65	65	65	65	35	65	33
2. Angioneurotic edema	22	22	22	22	10	22	14
3. Lymphosarcoma cutis	1	1	1	0	0	1	1
4. Urticaria	8	8	8	0	0	8	4
5. Lichen simplex chronicus	8	8	8	0	0	8	4
6. Eczematoid dermatitis	7	7	7	7	2	7	5
7. Dermatitis herpetiformis	14	14	14	0	0	14	6
8. Lichen planus	4	4	4	0	0	4	1
9. Seborrhoeic dermatitis	6	6	6	6	3	6	4
10. Contact dermatitis	1	1	1	0	0	1	1
11. Pityriasis rosea	9	9	9	0	0	9	6
12. Dermatitis medicamentosa	2	2	2	0	0	2	2
13. Dermatitis venenata	2	2	2	2	2	2	2
14. Pruritus ani	1	1	1	1	0	1	0

Calcibronat was used primarily through the intravenous route, given with a 20 gauge needle over a period of two to three minutes in the anticubital fossa, right or left indiscriminately, averaging one injection per week consisting of 5 cc. of standard Calcibronat solution. The level of Calcibronat was maintained with the administration of Calcibronat effervescent tablets or granules (1 tablet equals 1 tablespoonful of granules) by mouth three times a day after meals and at bedtime. In twenty-one cases, additional auxiliary treatment used consisted of superficial x-ray therapy in cases in which the condition was limited to small areas. It was never necessary to use more than a total of 1 erythema dose of superficial radiation without filtration. Other auxiliary treatment in all of these cases consisted of local nonspecific soothing applications such as starch baths, soothing lotions and ointments previously applied without other medication either by other observers or by myself without substantial relief or improvement until such time that a definite diagnosis could be established and a specific therapy instituted.

There was minimum variation in the immediate response to intravenous injections of Calcibronat in this group of patients. The reactions described by these patients voluntarily or on direct questioning were an immediate sensation of heat, usually localizing itself in those areas which showed the greatest inflammatory changes. In those cases in which the condition was general, approximately equally distributed, the effect followed a descending course from the throat to the upper appendages to the abdominal viscera and to the lower appendages, in the order mentioned. Variation in the rate and order of spread of the sensation of heat could be altered by the alteration of the position of the patient at the time of injection. In all cases, with the onset of the sensation of heat, there was immediate subsidence to complete disappearance of itching, burning or pain. When itching alone was an outstanding symptom in most of these cases, disappearance of the itching was complete for a period lasting from one to three hours. Immediately following the injection, there was a flushing of the face and neck and other exposed parts which could be observed (patients never completely undressed for purposes of observation). With the subsidence of the heat reaction, there followed a tendency to blanching of the previously reddened areas. The blanching, however, was followed in from five to ten minutes after the injection by restoration of normal color. Other observations made during and immediately following the injection were eye signs, none; pulse rate, slightly increased from ten to twenty beats per minute, followed by an equal slowing of the pulse rate five to ten minutes after the injection; euphoria, improved in all cases; post-injection sensation of "giddiness" in about 50 per cent of the cases (not unpleasant to patients, however).

When weeping was a factor in the skin condition involved, no immediate effect could be noted. After the second or third injection, however, definite subsidence of the amount of weeping could be seen.

When primary or secondary lesions were involved, including urticarial lesions, except for the immediate blanching as described, no immediate decrease in size, shape or number could be observed, but such changes could be observed after the second or third injection or after the institution of specific therapy.

The number of injections given in any one specific condition ranged from one to fifty-eight. The

case under observation for the longest period of time (four years), a case of neurodermatitis, received progressively the largest number of weekly injections, fifty-eight weekly injections. The side effects noted, besides those immediately after injection as described, were an acneform rash assumed to be an atypical bromine rash, localized primarily on the hairy parts of the body, including face, chest and nape of the neck. This rash consisted of individual papulopustular lesions ranging from pinhead to pea size and localized about the pylosebaceous pores. The lesions were always in groups of one or two, never exceeding five in any one area. The incidence of this side reaction in all cases was less than 1 per cent. No specific therapy for these lesions was necessary other than the addition of sodium chloride tablets to the regular diet for a short period of time. No other complications could be observed with the use of this medication over a long period of time.

CONCLUSIONS

1. One hundred and fifty cases of various skin conditions with itching, exudate and eruption as symptomatology are presented.

2. A nonspecific treatment for control of these symptoms is offered in order to assist in the more specific treatment of these cases.

3. Repeated relief of annoying symptoms was obtained with Calcibronat in those conditions in which no specific etiologic factor could be isolated.

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HAVE A COLD? KEEP IT TO YOURSELF, ADVISES DOCTOR

Keep that cold to yourself by staying away from other people, advises Dr. Donald A. Dukelow of Chicago, consultant in health and fitness for the Bureau of Health Education, American Medical Association.

Dr. Dukelow, writing in the October issue of *Today's Health*, a publication of the A. M. A., pointed out that with the approach of the season of rapid temperature changes, frequent wet feet or wet clothes and increased exposure to infection in closed rooms, there is an increased risk of colds.

"From all points of view—public health, personal health and your own public relations with your associates—the important factors in the care of a cold are to stay home, be quiet, make yourself as comfortable as possible and keep your cold to yourself. Nobody else wants it. And nobody wants you when you have a cold."

THE GENESIS OF HOMOSEXUALITY

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ST. LOUIS

Sexual perversion in general and homosexuality in particular have become meaningful within the content of the psychosexual conflicts as elaborated by Freud. By now it is commonly accepted that the homosexual person shows a regression to infantile norms of sexual gratification, that emotions engendered by castration fears are avoided and that sexual gratification becomes possible without the anxieties engendered by the Oedipal or castration complexes.

This paper is meant primarily to describe some of the conditioning, the feeling tone and terrain upon which the repetitive themes of sexual conflict and repression take place and in which an overt homosexual identification might ultimately result.

During treatment sessions with a homosexual person one becomes aware of how isolated, alone and apart from the mainstream of human activities this person finds himself. As the life story of the homosexual person unfolds itself in its infinite minutiae of everyday existence from early childhood on, one becomes aware of a persevering feeling of not relating, not being understood, not really considering himself close to a meaningful parent, usually of the same sex as the patient.

It is the finding of this feeling tone of being isolated and alone during the formative years —and a compulsive repetitiveness of the same pattern of isolation during homosexual involvements —that has prompted this paper.

Some of the questions that imposed themselves for an answer are:

1. Is there a casual relationship between this keenly perceived feeling tone of being isolated and the resort to homosexual relationship, which often perpetuates the same feeling of being on the sidelines, of not fully, nor permanently casting one's span of life activities into an adult emotional or social commitment?

2. Does the sense of loneliness, the insecurity and fear, in a world toward which the individual has never fully related, become mitigated by a homosexual liaison—with its make-belief, immature emotionalism and unstable, tenuous grip on reality? In other words: does the homosexual recreate, in his love realization, the same condition of isolation which has been his since childhood, but this time with a compliant confidant, thus assuaging the deep-seated, less tolerant fear of never having shared nor responded to the demands of his immediate environment?

A condensation of four case histories are presented to clarify this feeling tone of isolation as a prerequisite for homosexuality. The first two are those of overt homosexuals; the latter two are of

Read at the Missouri Society for Neurology and Psychiatry. March 20, 1950, Kansas City.

patients in whom considerable guilt feelings and rigidity of conscience have not allowed a frank homosexual identification.

CASE REPORTS

Case A. A 22 year old male, who has been overtly homosexual since the age of 19, described his father as never being demonstrative, never showing understanding nor companionship. The patient grew up fearing his father, misunderstanding his wit and sense of humor, and finding himself extremely uncomfortable in his father's presence, especially following the latter's return from overseas. The mother had a martyr complex and would take on a hurt expression if the patient dared to disobey her. A sister, two years older, was much closer to the father. She was promiscuous by the age of 16, when she married clandestinely. This caused considerable consternation to the mother and brother. The father was away in the army during that period.

The patient recalls feeling uncomfortable and small as a child. The father was at home only on week ends and the patient remembers being afraid of him, lying to him, being bashful, resorting to prolonged daydreaming in which he would visualize that his father was not really his father. During the same period he idolized his mother, daydreamed of rebuilding and stocking a large farm, where he led the existence of a feudal duke (father being dead) so that the mother was the dowager queen, admiring her son's regal manner. He never married in any of his phantasies. He never associated his parents as sexual partners. The patient yearned to be taken fishing and hunting by his father. Instead he had a prolonged doll-playing period and he resented being left behind when his sister left for school.

He went through early adulthood feeling unable to share emotional experiences and fearing going out with girls as they might discern his timidity and lack of confidence. As he stated it, "I always felt uncomfortable, I always felt small, inadequate, gawky or incomplete. I never had the confidence that I would live up to all the hopes the family bestowed upon me. I was smothered by being called 'a good boy' and felt sissyish indeed. I felt particularly alone while overseas, when I first became intimate with another homosexual person. At that time I was afraid of women, afraid of being rejected by them." First homosexual involvement occurred while he was unusually alone, solitary and drinking. "I constantly feared being discovered as a homosexual, my family becoming aware of it." This feeling of uneasiness, of social disapproval, of being for once together in the lonesome, detached apperception of the world, was always present.

During the treatment sessions the patient became aware of letting his sister be much closer to the father. As he stated it, "I was too afraid. I wanted really to please father but he would not encourage it so I turned toward mother."

Following a period of active dream production—including the recalling of some traumatic screen experiences and the continuous living of these prolonged, lonely periods—his awareness deepened, as to how "I was not really close to anyone in the family," and how this element of loneliness predicated and was ever present during his two major homosexual involvements.

Toward the end of treatment he was still uncertain as to his ability to carry out heterosexual acts; but he felt certain enough not to be drawn toward homosexual involvements and had renewed courage in handling himself socially.

Summary.—A period of insecure, isolated existence as a child, inability to relate and be accepted by his father, was followed by even more poignant awareness of not relating comfortably to his companions in the army, and ultimately led to a period of overt homosexual activities.

The gradual loosening of this snarl of hurt feelings, the reliving of his emotional involvement toward the father through fear, hostility, then love and craving for affection, gradually allowed him to supplant the keenly perceived feeling of being aloof and different and to accept a more tolerant attitude toward social obligations.

Case B.—A 24 year old girl, who has had repeated homosexual crushes since her early teens, was raised by a doting divorcee. She recalls being utterly disliked by her mother when she was small. She described how she rebelled continuously against being ordered around, how utterly isolated she felt as a child, and she blamed her mother for not having had a father for her during those years. At no time was she aware of any family strength, nor of any genuine attachment to anyone. Extremely wealthy and style-conscious, she tried continuously to be part of social circles, where she felt uncomfortable, and which gave her no sense of belonging. Throughout her school years she shrank away from any situation where she would stand out or attract attention to herself. She daydreamed of being extremely wealthy and socially prominent while she managed to get herself thrown out of school after school. She tested, imposed upon and alienated friends. She sought always a realization of being rejected, a verification of the longing for and fear of the solitary, utterly lonesome existence that was hers. Even in her homosexual involvements she was aware of not being able to share emotions, but the reassurance of being accepted, not censured, and the somewhat mitigating effect of these involvements upon her sense of being alone sufficed and gave some semblance of a raison d'etre for an extremely haphazardous, egocentric, volatile and socially disconcerting pattern of existence.

Summary.—In this case the ever present awareness of always being alone, out of place and not at ease coexisted with a series of homosexual involvements. Consciously the patient needed someone to share this weight of aloofness,. to recreate situations infantile, so as to smother the awareness of the earlier, more threatening feeling of being isolated.

She has been fully aware of not being able to reciprocate emotionally, even toward her homosexual partner. Yet, within the homosexual relationship, she was able to participate, feel somewhat more relaxed and secure in face of a world too severe for her. Although still intrinsically solitary, she was less frightened. The aggressive maleness of the world about her was more distant. The awareness of being wanted but not having the stability to render in kind was less poignant. In her existence—unreal and hostile—an ally, a confidant was present; one who cared, but did not demand; one who was temporary, but not lasting.

Case C.—This 42 year old woman had always felt extremely inadequate and hostile toward her mother and oldest brother. She described her mother as always being critical of her, overtly preferring her brother to her. Patient was disappointed in not having a little sister, was jealous of her brother and fervently hoped, until the age of 12, that she might still be-

come a boy. She felt that she injured herself through masturbation, felt guilty about sex and knew but little about acts sexual until she reached 21. She always resented being a woman. She had frequent phantasies of castrating her younger brother, guilt feelings about a third brother who died at the age of 10, and she had dreams during which she had incestuous relationships with father and older brother.

The patient recalls an early childhood replete with awareness that her mother not only did not care for her but even vindictively resented her. The father either ignored her completely or openly expressed his preference for his sons.

Frequently she relived the feeling tone of an existence totally alone, unloved by her mother, who often referred to her as "a bad, wicked little girl, who is expected to act badly all her life."

The patient recalls fearing, at the age of 7, while vacationing with mother at a resort, that a stranger was in her mother's bed, and that the only security she knew—the overprotectiveness sporadically offered by her mother—might also be jeopardized. Yet, this mother, an arrogant, domineering person, freely told the patient she reminded her of her mother whom she cordially disliked. The patient felt always excluded from the relationship between mother and brothers, never having status, significance, or worthwhileness within the home structure.

Her awareness of always being frigid during sexual intercourse made her feel angry toward men; also gave her the feeling that no man would care for her, once he had known her long enough.

The patient felt that the mother was responsible for her feeling of loneliness and inadequacy. She would perceive the same feeling of inadequacy during coitus. She was poignantly aware that she was never made to feel secure and dignified as a little girl; that the boys were so much more desirable and that "I was so isolated, there was no place for me at home."

Summary.—This patient was not able to accept her need for homosexual identification. Although keenly aware of incestuous desire and a devouring hostility toward a domineering mother, the psychosexual outlets would alternate between phantasies of having a penis, acting out coitus in a male role and in outbursts of promiscuous behavior, where frigidity shared with the awareness of being utterly inadequate emotionally.

Obsessively aware of her keenly felt sense of guilt, incapable of softening its impact on her sense of adequacy, utterly alone and misunderstood by her immediate family group, she was smitten by a savage conscience which she was only partially able to dissolve in alcohol. She was a scared, tense, preoccupied person who would not cast off this cloak of being solitary and inadequate despite a strong relatedness in the treatment situation.

The fact of having no status within her home and of having felt for so long neither wanted nor cared for hardened a feeling of intolerance about herself, her status and her adult bearings that could not become softened even when the home pressure ceased to exist.

Case D.—This 28 year old married male had gastrointestinal complaints, periods of depression and suicidal thoughts. He expressed extreme hostility toward his father who never encouraged him to feel adult, grown-up or important. He described his father's philandering, the continuous scenes this provoked in the home, the prolonged periods when the father, a salesman, was absent from home. The patient always felt different from his father, younger brother and even his mother. He recalled how jealous he was to see other children share and accept affection from their fathers. His father never came close to him and never was around when he went to school. The patient identified himself with the mother, yet was intolerant of her oversolicitude and felt that mother's excessive love robbed him of his self respect and confidence.

He was extremely inhibited sexually and, married four years, had considerable difficulties with ejaculatio precox as well as frequent phantasies about his wife being unfaithful to him. He was extremely dissatisfied with his sexual adjustment.

During treatment the feeling tone of an existence isolated, threatened and misunderstood was gradually recreated. This also allowed the need for affection and strength from his father to become apparent.

Summary.—In this patient the sense of sexual inadequacy existed along with the sensation of feeling distant, unrelated and isolated from the patient's family group.

The suicidal ideas, the phantasies about his wife's infidelity, the utter regression and panic slowly gave way to a more positive, serene attitude as the hostility toward his father faded, as the sense of isolated, threatened and meaningless existence gave way to a more mature, realistic acceptance of his status, both marital and economic.

DISCUSSION

The case illustrations, the first two of overt homosexuals and the other two of patients struggling so desperately with the difficulties in accepting heterosexual status, contain a common factor. There was a prolonged period of feeling isolated, threatened, misunderstood and thwarted; a childhood during which acceptance by a meaningful parent was absent, status was denied and the feeling tone of not belonging was keenly present. Opportunities to express warmth and affection and to feel needed were denied to these individuals.

One becomes aware of the homosexual's need to recreate periodically the kind of existence in which the sense of poignant isolation was present as if he desperately wishes to relive a traumatic situation in order to prove that it was not quite as grim as his mind perceived it. It is as if the awareness of being alone and misunderstood creates the need of being with others, just as alone; of creating and living through situations which would justify the feeling of isolation which is so morbidly threatening and devastatingly annihilating. To be alone becomes more tolerable when it is with another like ones self so that love entails not so much the competitive or the opposite but the reassuring acceptance of the like, of persons more akin, and hence less tantalizing and traumatic.

The appearance of hostile drives as a component of these homosexual relationships becomes easier to understand. The person frustrated in a life secure, ample, heterosexual, seeks assurances of adequacy to the extent of expressing drives for

mastery, conquest, even subjugation of the homosexual partner to his own level of isolation. The resentment about one's own lack of sexual emancipation becomes apparent in the rages and jealousies toward a love object, who seems less dependent on homosexual outlets. A need to hurt, to belittle, a sudden rage, or impulse to obliterate, a drive to consumate or engulf and make the love-object entirely dependent upon oneself—all these emotions play a prominent part in the intensities of homosexual relations.

These emotions often can be predicated on the hurt feeling tone of being isolated, and the infantile-like need of feeling less so through complete identification and reliving, in a love-play situation, of the intensities of loneliness which are so insufferable, when present alone, outside of the love situation.

SUMMARY

The urge toward homosexual identification, based on a need to avoid castration and Oedipal fears in relationship to sexual gratification, is reinforced by a keenly perceived feeling tone of being isolated. This is engendered by a family constellation in which a meaningful parent has withheld emotional warmth and caused a childhood replete with threats and fears.

The homosexual seeks to lull this feeling tone of isolation by resorting to love-play situations which contain elements of the loneliness he is trying to escape.

In successful treatment relationship this feeling tone of being isolated is relived, a complete emotional identification with the dominant parent is made possible and a resynthesis toward mature concepts becomes feasible, even when the Oedipus-longing and castration fears are but dimly accepted.

The homosexual, a threatened, isolated, insecure individual, is encouraged to maintain homosexual ties by the reason that such an existence is actually shunted, suppressed, unreal and socially disapproved. Being pushed into the byways or underpasses of everyday existence may be the essential need that these homosexual relationships require.

Greater understanding, greater sympathy for the origin, needs and gratifications that a homosexual relationship represents might also hasten the homosexual's ability to become freed from a mode of existence which is perpetuated by its temporary, unreal, make-believe like quality. A more understanding grasp of the solitariness and aloofness within the homosexual might often mean the difference in helping these individuals to bridge the gap toward an adult life, mature commitments as well as a claim, a right, and a relatedness toward life.

4500 Olive Street

SURGICAL TREATMENT OF CARCINOMA OF THE CERVIX

JOSEPH W. KELSO, M.D.
OKLAHOMA CITY, OKLAHOMA

THE SURGICAL management of malignancies in every part of the body has been extended and, in some instances, is no longer a question of what the patient can stand but what the surgeon can indure. When one reviews the results of this disease there is nothing left to do but search and hope for something that will give these patients a better chance for survival. Prior to the discovery of specific therapeutic agents to combat infections and the liberal use of blood to supplant the blood lost at operation, the radical operation for cancer of the cervix carried with it too great a mortality for the average gynecologist to accept. Consequently, surgeons gracefully conceded to the radiologists. Finally, the much needed stimulus was given when in 1944 Dr. Joe Vincent Meigs of Boston offered a preliminary report on thirty-five cases which he had operated upon without a surgical mortality. Dr. Meigs is continuing with his work and no doubt his numbers reach close to two hundred by this time. This report gave me the courage I needed to carry out this procedure because I had always thought that some of these people were being denied a form of treatment that might allow more of them to carry out a normal life expectancy.

On December 1, 1945, I operated upon my first case and I am offering a report on sixty-two cases on which I have done the radical Wertheim hysterectomy and a bilateral lymphadenectomy. In addition to this, I carried out a presacral neurectomy on forty-seven of these sixty-two cases, on the basis that unquestionably some of these patients would develop local recurrences and, if so, could die with a less amount of pain. This has been, for the most part, abandoned because I believe the same end result is accomplished in extensive dissection. In addition to the sixty-two cases, a combined perineal resection of the lower sigmoid and rectum was added to the Wertheim in three cases and a total cystectomy with ureteral transplants in one other case. However, I will discuss only the sixty-two cases.

Great achievements have been realized by use of x-ray and radium in the treatment of cancer of the cervix, and many a woman owes her life to these therapeutic agents. My radiologist friends agree that statistics could stand an improvement and additional methods of treatment are needed badly. That serious cry for help is the basis of this report. I am taking but little, if anything, from these patients that the radiologist has given them because, with the exception of the earliest cases, I have given all cases radium four weeks prior to operation and all patients have received a

Presented at the Ninth Councilor District Meeting in Lebanon, Missouri, January 1950.

full dose of deep x-ray therapy following their recovery.

The extent of the growth is definitely more important than the morphologic characteristics and herein lies the secret of success or failure. I have made no particular distinction as to the grading of these growths, but cases who are detected early enough to be subjected to operation, in my opinion, should be operated upon.

In this extensive procedure I attempt to remove all the gland bearing tissue in the pelvis, along with wide removal of the uterus and a variable but liberal amount of the upper vagina. All the glands are dissected out completely, leaving the ureters and blood vessels running across the pelvis quite free of any attachments and supporting tissue. In spite of Dr. Meigs' repeated emphasis against operating upon women past 50, and obese women, I have felt that any treatment, for all practical purposes, should be applicable to all patients suffering from the disease. I have, therefore, made no distinction in these cases, accepting all in which I thought the addition of surgical intervention might give the patient a better chance for survival. To date I have no regrets. No one realizes better than I that the operation may not be done as well in the obese as the thin patient, and this alone may distort the five year statistics when figures from one clinic are compared with those of another. It is needless to say that it would be most desirable if every alternate case of the same clinical stage could be treated with radiation for a control against the one subjected to the surgical procedure but I have not enough volume of cervical malignancies to carry out such a comparison.

These sixty-two cases presented are a preliminary report on the Wertheim operations I have done during the last four years. Out of this group of patients there has been one operative death with a mortality of 1.6 per cent.

These are all proven invasive carcinomas of the cervix. They are not "carcinoma in situ." Seven cases were of the columnar variety and fifty-five were squamous cell in origin. This is definitely a higher incidence of the adenomatous type than is usually encountered in the Clinic at the Oklahoma University School of Medicine where the ratio is about 1 to 25 compared to 1 to 7.9 in this group.

We use the late Dr. Henry Schmitz classification of these lesions in preference to the League of Nations. The latter grouping was based on the idea that in this way there would be a more equal numerical distribution of cases in each classification. However, I have always contended that, with a few more years of publicity and propaganda, physicians would see more of these cases earlier and that this equal distribution would occur automatically. This group of patients substantiates my prophecy and therefore I will continue to defend the Schmitz classification. There were fourteen cases which I classified as Group I; thirty-four cases as Group II, and fourteen as Group III. Of course, there were no Group IV cases and most of the Group III cases have been those falling into the early half of group III but lately I have been operating upon a few more of the more advanced cases. Out of the cases who have received intracavitary and interstial radium before surgery, 40 per cent showed viable malignant cancer cells in the cervix. No doubt if more extensive search had been made the percentage would have been much higher.

Of the sixty-two cases of the variable state of the existing malignancy, after extensive dissection of the gland bearing tissue, metastatic nodes were found in nine cases or 14 per cent. This is a little below Dr. Meigs' original report of 18.5 per cent; but there has not been the time and money to have these tissues examined as minutely as they should be and this may explain the slightly lower figure. No metastatic glands were found in any of the five women who have since died from cancer. Three of these patients died from distant metastasis and two from local recurrences. One 24 year old girl and a 50 year old woman died of pulmonary metastasis and a 49 year old woman died of a metastatic lesion in her lumbar spine two years and nine months after her operation and one year after she developed swelling of her leg.

In five cases the malignancies have been associated with pregnancy. The first patient operated upon was six weeks pregnant and the other four were diagnosed soon after they delivered. All realize that this complication adds materially to the prognosis and these women are being watched closely. Three of these cases involved a cervical stump from hysterectomies which had been done many years before and, consequently, the disease had developed long after the uterus had been amputated. Such an incident leaves but little argument between total and the incomplete hysterectomy. One needs no further evidence to defend one's positive position. It is indeed surprising to note that ten of these cases were below the age of 30; twenty-seven cases between 30 and 40; fourteen between 50 and 60; three between 60 and 70, and one patient was 72 years of age. The youngest was 22.

Considering the extent of the procedure that allows such a complete pelvic dissection, the patients have made unusually smooth postoperative recoveries. Two patients became quite sick but I believe they were operated upon too soon after radium. The reaction of radium is a variable factor and one not easily predicted. The one patient lost was because of an extraperitoneal abcess. The patient went into cardiovascular collapse after an incision and drainage and died fifty-six hours later. Most of these patients have trouble with a urinary residual but this soon corrects itself. There have been five ureteral fistulae, making an 8 per cent occurrence. Ureteral catheters are placed before operation. I feel confident that they in no way add to the possible injury to the ureters

and there is no question but that they facilitate the operation and thereby may prevent accidental injuries to these structures.

Much to my surprise there has been only one patient who has developed a phlebitis. One would anticipate a higher incidence of this complication when these vessels unquestionably are traumatized more than in the average pelvic operations. These patients' cardiovascular balance is maintained on a constant level throughout the procedure and this may account for this low incidence to date. Their blood loss is estimated constantly and this loss is replaced immediately. With the help of anesthetists, apparently these patients are being carried through this dissection in a satisfactory manner and are being sent back to their rooms to start their recovery, not in shock, but in excellent physiologic balance.

SUMMARY

1. This is a preliminary report on sixty-two radical Wertheim hysterectomies with a bilateral lymphoidectomy as an adjunct to treatment of carcinoma of the cervix.

2. There has been one surgical mortality and five other patients have died from cancer.

3. These patients are prepared adequately and successful management of these cases necessitates the availability of all resources of modern surgery.

4. Indwelling catheters are placed prior to operation and thereby the precedure is facilitated and ureteral accidents prevented.

5. Penicillin and all antibiotics are of unestimable value.

6. Skilled anesthetists and use of spinal anesthesia and supplementation as needed reduce the hazards of prolonged surgery and allows such extensive dissection to be completed successfully.

7. Adequate blood replacement during the operation to eliminate periods of shock, and the postoperative maintenance of a state of physiologic balance by the intravenous administration of fluids fortified with glucose, minerals, proteins and vitamins are essential.

8. Postoperative use of liberal quantities of antibiotics unquestionably has allowed such extensive surgical procedures to be done with a minimal mortality rate.

CONCLUSION

This report shows that sixty-two cases were subjected to the radical Wertheim procedure with one operative mortality. The scalpel is a delicate instrument, but with the proper evaluation of patients who have been prepared properly, one can, in this modern surgical age, extend treatment beyond the scope of radium and without injury to the vital structures and tissues left behind. The exhibition of common sense and surgical judgment with a constant awareness of physiologic changes make it possible to promote extensive surgery. Age must not influence recommendations and one must adjust organic diseases until they no longer remain hazardous contraindications. Courage is necessary to treat cancer and conservatism soon becomes the rankest radicalism.

True, my experience has not been enough. Neither has anyone else had sufficient experience to draw conclusions. There are not statistics for comparison, but it will not be too long until Dr. Meigs will be able to defend or condemn this procedure. Until he does condemn the radical surgical attack, I am going to continue to do this extensive operation unless my operative mortality suddenly rises to a prohibitive level.

525 N.W. 11th Street.

POSTWAR DISTRIBUTION OF DOCTORS MORE EVEN THAN PREWAR

Family doctors in private practice, who provide the bulk of medical care for the nation, were more evenly distributed in 1949 in relation to state populations than in 1938.

This is shown by a study recently published as Bulletin 78 of the American Medical Association's Bureau of Medical Economic Research.

"Despite the tremendous population shifts during the 1940's and the high level of national prosperity, which would tend to draw physicians to the heavily populated industrial states, general practitioners have redistributed themselves into a more even pattern than was found before World War II," said Frank G. Dickinson, Ph.D., Chicago, director of the bureau.

"The figure in our study on physician-population relationships by states that is important to most people is the distribution of family doctors who actually have their offices open for private practice. It is not the distribution of the total number of doctors. Therefore, in our computation we eliminated doctors in the government services and armed forces, on hospital duty on a full-time basis, retired physicians and those in administrative and other such positions which take them out of private practice.

"A separate study was made to show the distribution of full-time specialists in private practice because these physicians draw their patients from wider areas and, on the whole, are located in the cities.

"However, we found that full-time specialists, like family doctors, were more evenly distributed in relation to state populations in 1949 than in 1938.

"These conclusions are based upon statistical measures of relative variations in the state physician-population ratios."

"A" AVERAGE NOT REQUIRED FOR ADMISSION TO MEDICAL SCHOOLS

An A average in premedical college work is not required for admission to medical schools, Donald G. Anderson, M.D., Chicago, Secretary of the American Medical Association's Council on Medical Education and Hospitals, states.

According to a recent report to the council, 10 per cent of the students admitted to medical schools in the United States during the academic year 1949-1950 had no better than a C+ scholastic average in premedical college work. Many others, Dr. Anderson pointed out, had B averages.

A METHOD OF BILE COLLECTION FROM "T" TUBE DRAINAGE OF THE COMMON BILE DUCT

E. J. SCHEWE, JR., M.D.
CLAYTON

The collection of bile in cases requiring "T" tube drainage of the common bile duct is frequently an awkward procedure entailing use of cumbersome equipment and resulting in soilage of dressings and bedclothes with bile. A method has been adopted at the St. Louis County Hospital, Clayton, Missouri, which has eliminated many of the shortcomings attending the problem of bile collection.

The required equipment is commonplace in any hospital laboratory and can be prepared and assembled with a minimum of effort. The essential parts consist of a six ounce medicine bottle, preferably flat in contour, a number 1 double-holed rubber stopper to fit the neck of the bottle and two pieces of glass tubing to fit the holes in the stopper. The tubing need be no more than two inches in length.



One glass tube, when inserted into one of the holes of the stopper, serves to receive the bile when the "T" tube is attached. The tube may be angulated slightly for better adaptation. The other tube acts as an air vent. To prevent spillage of bile should the bottle be inverted, the external tip of the tube is flamed in a Bunsen burner until the lumen of the tip is of capillary diameter.

The bottle may be attached to the patient by an adhesive tape sling which in turn may be fastened to a belt or binder about the patient's waist. With the point of fixation of the bottle near its neck, the bottle tends to assume a dependent position irrespective of the position of the patient.

This technic of bile collection has been found to present the following advantages:

1. Accurate collection of bile for purposes of measurement, analysis or culture.
2. Freedom of motion of the patient in bed. The entire collection system moves with the patient and there is less danger of the "T" tube being inadvertently pulled out.
3. It is esthetically satisfactory to the ambulatory patient. A flat bottle is easily concealed beneath ordinary street clothes.
4. There is minimal soilage of bedclothes and dressings. Even in inversion scarcely a drop of bile escapes via the air vent.

The above described arrangement for bile collection from a "T" tube has been in use for the last two years at this institution and has met all of the mentioned shortcomings adequately.

601 S. Brentwood.

Associate Resident in Surgery, St. Louis County Hospital, Clayton.

MEDICAL SURVEY SHOWS TREND TOWARD GENERAL PRACTICE

Student polls and medical school programs reveal a rising trend toward the general practice of medicine, Donald G. Anderson, M.D., Chicago, secretary of the American Medical Association's Council on Medical Education and Hospitals, reports.

Dr. Anderson cited statistics gathered for the council's recent survey of medical education, which covered the seventy-two medical schools in the nation approved by the A.M.A.

"Student polls taken over a period of the last three academic years indicate that the percentage of students planning to enter general practice has increased from 36 per cent to 47 per cent, and that the number planning to specialize has decreased from 36 per cent to 31 per cent," he said.

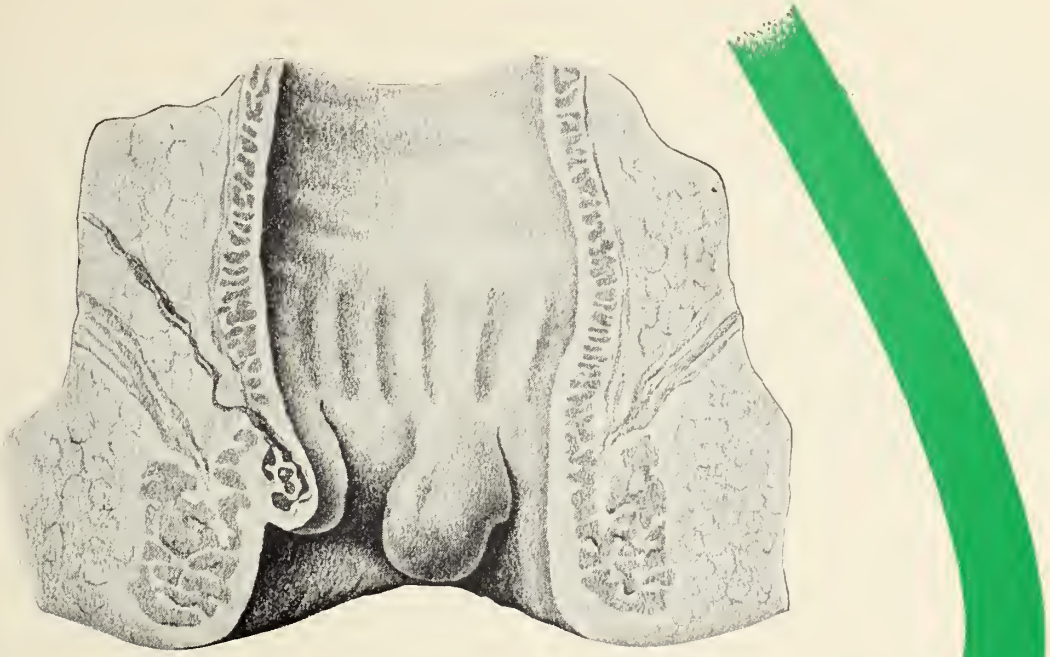
"During the academic year 1949-1950, thirty-one classes in nineteen medical schools were polled by their schools to determine the students' plans with respect to practice.

"The overall averages for the students in the thirty-one classes were as follows: 47 per cent planned to enter general practice and 31 per cent to specialize; 22 per cent were undecided.

"Forty-two schools have programs specifically designed to stimulate the interest of students in careers in general practice. Thirteen schools report the establishment of preceptorships with practicing physicians as regular assignments in the medical school course, nine having established them within the last two years.

"Fifteen schools are sponsoring in their affiliated hospitals internships specifically designed for prospective general practitioners. Twelve schools are sponsoring residencies in their affiliated hospitals for prospective general practitioners. Several other schools have similar programs under consideration."

Nearly two out of every three physicians in private practice in this country are general practitioners, according to the A.M.A.'s recent count of physicians in connection with its publication of the 18th edition of the American Medical Directory.



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SEARLE RESEARCH IN THE SERVICE OF MEDICINE

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A warm welcome awaits physicians who are members of their state medical societies at the annual meeting of the Southern Medical Association to be held in St. Louis, November 13-16, 1950. Physicians are urged to take advantage of this opportunity to receive one of the most complete postgraduate course ever offered. **There is no registration fee at Southern Medical Association meetings.**

The meeting will include four general clinical sessions covering the whole field of medicine and surgery, thirty-two section sessions covering every phase of medicine, five conjoint meetings, scientific and technical exhibits and an evening devoted to fun and good fellowship. Regardless of how general or how limited ones interest may be, there will be a program at this meeting to challenge that interest.

This is a meeting members of the Missouri State Medical Association cannot afford to miss. COME.

SOUTHERN MEDICAL ASSOCIATION

Empire Building

BIRMINGHAM 3, ALABAMA

Postgraduate Review

RECENT ADVANCES IN THE TREATMENT OF CONGESTIVE HEART FAILURE

R. BRUCE LOGUE, M.D.
ATLANTA, GEORGIA

THE ADVENT OF the use of purified glycosides of digitalis raised the hope that these would be greatly superior to the digitalis leaf. Expectation has not been realized. It is now apparent that there is little advantage in the glycosides over the whole leaf. It is true that a standard potency is assured with glycosides. It may be possible that an occasional case of local gastrointestinal irritation due to digitalis leaf will be avoided and there may be at times a psychologic factor involved in the prescribing of digitalis, which might be circumscribed by the use of glycosides under the various trade names. The glycosides do not offer a more efficient or safer digitalization.[1] The earlier claims for less toxic symptoms have not been borne out; in fact, more toxicity has been noted due to confusion regarding the proper maintenance dose.

The duration of toxic symptoms is from seventy-two hours to one week in the case of digitoxin, whereas, symptoms usually subside in forty-eight hours with digoxin and lanatocide C. According to Batterman and DeGraff the optimal maintenance dose is 0.5 mg. of digoxin, 1 mg. of lanatocide or 0.1 mg. of digitoxin.[1] Gold[2] recommended 1.2 mg. of digitoxin for the average digitalizing dose but DeGraff and his coworkers found that this dose was inadequate in 83 per cent of their patients and the average therapeutic dose was 2.2 mg.[1] They felt that it offered no advantage over digitalis leaf because of its slow dissipation and the possibility of prolonged and severe toxicity. They found toxicity in approximately one third of patients maintained on 0.2 mg. of digitoxin daily for from ten to twelve weeks. The digitalizing dose of digoxin varies from .75 to 2.5 mg. It would seem preferable for one to use the digitalis preparation with which he is familiar.

LaDue and Carter[3] have studied the value of digitalis in preventing the recurrence of congestive heart failure. In 104 patients with heart disease during a control period without digitalis, forty-five were admitted to a hospital for recurrent congestive failure while there were only twenty admissions from the group while the patients were taking digitalis. Stead and Warren[4] reported a careful study of the effect of lanatocide C on the circulation of patients with congestive failure. They noted an average fall in the atrial pressure of 62 mm. of water. The cardiac output increased in eighteen of twenty-two patients an average of 1.6 liters. There was no consistent change in the oxygen consumption but there was a decrease in A-V oxygen difference. The systolic and the mean arterial pressures rose and the peripheral resistance fell. The stroke volume increased in twenty of the twenty-two patients. They concluded that lanatocide C increases the cardiac output in the presence of normal rhythm and that the primary action is on the ventricular muscle. These effects occurred rapidly within a period of one to two hours following administration. McMichael and his group[5] feel that the major action of digitalis is in lowering the venous pressure. Patients with high cardiac output during failure such as in emphysema and chronic pulmonary disease have demonstrated a decrease in the cardiac output when the venous pressure was lowered by venesection or digitalis.[6] Similar changes are seen in heart failure in the presence of severe anemia. They concluded that in the group with high output failure that measures which lowered the venous pressure such as venesection and digitalis are therefore usually harmful and, in this group of patients, they recommended a prolonged stay in an oxygen tent, treatment of respiratory infection and the possible use of antithyroid drugs. In studying patients with low cardiac output in the presence of congestive failure, they demonstrated an increase in cardiac output with lowering of venous pressure by venesection or tourniquets. Following increase in cardiac output there is usually a fall in blood pressure, indicating decreased peripheral resistance. The cardiac work usually is increased. Digitalis differs from venesection and tourniquets since the blood pressure frequently rises with the former and falls with the latter.

The use of sodium restriction has been a great advance in the management of cardiac edema. There have been those who have advocated a high fluid intake and an acid ash diet. With this regimen, fluid has been forced by vein or by mouth up to 15 liters in twenty-four hours.[7] Other workers have been unable to demonstrate the value of forcing fluid and feel that water should be allowed ad libidum.[8, 9] In many cases restriction of sodium to 2 gms. of sodium chloride or less may abolish the necessity for the use of mercurial diuretics. Bryant[10] demonstrated the value of low sodium diet with forced fluids in the management of hypertensive disease and, indeed, felt that some of the patients with congestive heart failure responded better to this regimen than to digitalis and mercurials. The use of morphine and Demerol in patients with congestive failure occasionally may produce an antidiuretic effect and it has been suggested that this is accomplished through a stimulation of an antidiuretic hormone of the pituitary.[11, 12] The content of sodium in tap water must not be overlooked in the use of low sodium diets. In some areas this may be as much as 10 mg. per 100 cc. The drinking water of the City of Los Angeles, for example, contains as much as 20 to 26 mg. of sodium per 100 cc. This may account for the failure of low salt diets in treatment of some patients with hypertension in the areas in which the salt content in the water is high.[13]

The proper use of mercurial diuretics is of utmost importance. These may be given at weekly intervals or several times weekly as indicated. They are indicated for paroxysmal nocturnal dyspnea or dyspnea on exertion which are not controlled by digitalis and restriction of sodium. One must avoid salt depletion and particular care should be taken in the administration of mercurials to patients during rigid sodium restriction. Mortalities have been reported following sodium diuresis. "Weakness, lassitude, anorexia, nausea, vomiting, restlessness, thirst not relieved by plain water, apathy, mental confusion, fall in blood pressure, increase in pulse rate, diminution in volume of the pulse, clammy skin, shock and coma are all symptoms or signs which may be present in excessive salt depletion. Any one may be due to other causes such as excessive sedation, digitalis, unrelated infection, thromboembolic phenomena, or natural progress of the cardiac disease."[14] Rare deaths following the intravenous administration of mercurials due to ventricular fibrillation have been reported. Recently attention has been called to acute urinary retention in elderly patients with prostatism following the intramuscular administration of mercurial diuretics. Some authors believe that this is due to acute distention of the bladder.[15] The introduction of Thiomerin which can be given subcutaneously with comparable effects to the older mercurials and with less toxicity is a decided advance. This may enable patients in outlying districts who need frequent mercurials to have them administered by members of the family.[16, 17] Tender induration which subsides within forty-eight hours may be noted with about 4 per cent of injections and nodules occur in about 2½ per cent. Subjective burning at the site of injection occurs in about 10 per cent of injections. At times diuresis is more marked with Thiomerin than with intramuscular compounds. Mild systemic reactions similar to those of mercurophylline have been reported. As with all mercurial diuretics excessive depletion must be avoided. Cerebral thrombosis has been precipitated by marked diuresis.[18]

One of the limiting factors in the management of the patient with congestive heart failure is thromboembolism. In spite of the wide use of anticoagulants, this is an ever present threat to the compensation of the cardiac patient. The value of anticoagulants in the treatment of myocardial infarction has been demonstrated in the group study of the American Heart Association. In the control group the mortality was 24 per cent and in the treated group 14.9 per cent. This decrease in mortality was due to less thromboembolic complications. Twenty-five per cent of the control patients and less than 11 per cent of the treated patients developed at least one thromboembolic complication.[19] It has now become an established practice in some hospitals to place patients with congestive heart failure on anticoagulant therapy routinely. In occasional instances of repeated infarction, ligation of the superficial femoral veins should be undertaken. The clinical recognition of pulmonary embolism still leaves much to be desired. A patient may develop congestive failure for the first time, or an increase of congestive failure previously present, and embolism should be suspected when congestive failure does not respond to usual therapy. There may be pleuritic pain, but the great majority of pulmonary emboli are not associated with the classic findings of consolidation of the lungs and hemoptysis. X-rays are of limited value for the first twenty-four hours following onset since the changes due to consolidation or effusion may not be apparent. Furthermore, these patients are usually ill and portable films are notoriously poor for interpretation. The emboli are more often located in the lower lobes and with splinting of the chest, lung shadows may be obscured by the diaphragm. Intercostal nerve block, ethyl chloride spray or intravenous calcium gluconate may relieve the acute chest pain. Because of the high incidence of mural thrombi within the heart of patients with cardiac disease it may be difficult to determine the origin of the embolus. The occurrence of local signs in the calf muscles or popliteal region may be delayed for days or weeks. Thus such things as local calf tenderness, slight swelling of the legs and temperature or color changes and Homan's sign may occur relatively late in the course of the disease. Paritol and Tromepane give promise of being improved anticoagulants.

Much has been written regarding the use of quinidine in the treatment of auricular fibrillation. In one series, the risk of embolism to patients treated with quinidine was 4 per cent and the risk of embolism when auricular fibrillation was allowed to persist was from 15 to 20 per cent.[20] It is my feeling that there is still danger attendant to the treatment of the patient with auricular fibrillation. The contraindications usually listed are: (1) severe conduction defects, (2) subacute bacterial endocarditis and (3) angina pectoris relieved by onset of auricular fibrillation. Kohn and Levine[21] list four indications: (1) auricular fibrillation in a normal heart, (2) persistent auricular fibrillation after operation for thyrotoxicosis, (3) when irregularity causes intractable palpitation, (4) certain hopeless cases in which other forms of treatment have failed. Intramuscular atabrine in doses of 0.3 to 0.6 gms. has at times been effective in the treatment of auricular fibrillation.[22] It is particularly effective in paroxysmal fibrillation of short duration. The use of Fagarine, an alkaloid recently used in Argentina, has resulted in ventricular fibrillation at times and its use at this time is not recommended.[23] Procaine has found favor among thoracic surgeons in operations on the heart, although the evidence for its use in the human in preventing cardiac arrhythmia is conflicting. Pronestyl, an amide of procaine with a prolonged action, is effective in the prevention and treatment of ventricular arrhythmias.

The treatment of shock associated with myocardial infarction remains a problem. Corday and Prinzmetal[25] have shown the ballooning which occurs in the dog's ventricle following coronary artery

ligation when shock is produced. This ballooning action disappears when the blood pressure is restored. The use of transfusions in the human may cause some transient rise in pressure but the results have been disappointing.[26] Aminophylline in a dose of 3¾ to 7½ grs. intravenously may double or treble the cardiac output for a short period of time and occasionally this has been beneficial in myocardial infarction in the treatment of shock.[27]

There is no question but that the rice diet is beneficial in the management of hypertensive heart disease with congestive heart failure. Kempner[28] has repeatedly shown dramatic regression of papilledema, hemorrhages and exudates in hypertensive patients kept on the rice diet for long periods of time. The difficulties of remaining on the diet for long periods of time are apparent and this explains to a large degree the inability of others to reproduce his results. The rice diet contains 2,000 calories, not more than 5 gms. of fat, about 20 gms. of protein, and not more than 200 mg. of chlorides and 150 mg. of sodium. The patient takes an average of from 250 to 350 gms. of rice daily and the fluid is limited to from 700 to 1,000 cc. of fruit juice a day. All fruit juices and fruits are allowed with the exception of nuts and dates, avocadoes and dried or canned fruits to which substances other than white sugar have been added. No more than one banana a day should be taken and white sugar or dextrose may be taken in amounts of from 100 to 500 gms. daily. No vegetable juices or tomato juice are allowed. Supplemental vitamins are given daily. The diet has been most effective in hypertensive patients with cardiac or renal failure. Patients are maintained on the diet for a minimum of three months and in most instances must remain on a modified diet for many months or indefinitely. Of course, the low sodium content of the rice diet is of utmost importance; however, the exact mechanism of the hypotensive effect remains to be elucidated.

The effect of various infections on the cardiac reserve is well known but there is little information on how this is mediated. The introduction of antibiotics has been beneficial in the treatment of congestive heart failure, by allowing control of infections. The beneficial effect of penicillin in the treatment of subacute bacterial endocarditis has been proven and cures may be effected in about 85 per cent of cases. The limiting factor following bacteriologic cure is the congestive failure which may occur due to extensive valve destruction and myocardial degeneration incident to the disease. Myocardial abscesses frequently occur in the region of the valve rings during the course of acute bacterial endocarditis.[29] Aureomycin and chloromycetin have widened the scope of chemotherapy. Aureomycin has been effective in treatment of bacterial endocarditis due to staphylococcus. The new antibiotic, Terramycin, has a range of effectiveness similar to aureomycin and the toxic symptoms are said to be less. The congestive heart failure incident to tuberculous pericarditis can now be controlled with streptomycin and paraaminosalicylate. The use of the latter drug has delayed and decreased the resistance of the tubercle bacilli to streptomycin. At the present time it is felt that from six to eight weeks of treatment is optimum with tuberculous pericarditis. The dose varies from 1 to 2 gms. daily and the medication is effective parenterally without the necessity of instillation into the pericardial sac.

The most exciting advance in the management of acute heart failure due to acute rheumatic fever has been the use of adrenocorticotrophic hormone and cortisone.[30] There have been reports of dramatic remission of acute rheumatic fever with such therapy. The fever, sedimentation rate, pericardial rub, tachycardia and electrocardiographic changes may clear up rapidly. Preliminary evidence suggests that such therapy may prevent the subsequent development of valvular heart disease although the length of observation in the small number of cases treated has been inadequate to date. It is hoped that simpler compounds may be produced cheaply in the near future so that these drugs may be employed on a wide scale. Unlike the results with rheumatoid arthritis, periarteritis nodosa and disseminated lupus erythematous, there may be no relapse of rheumatic fever when the drug is discontinued.

In the presence of considerable anemia and congestive heart failure, the administration of red blood cells suspended in 5 per cent glucose in distilled water may be quite helpful. By this means one may avoid the increase in blood volume and the large amount of sodium present in whole blood or plasma with its concomitant danger of precipitating acute pulmonary edema or increasing the degree of congestive heart failure. There are times when hypoproteinemia may increase the tendency to retention of water in the tissues by lowering the oncotic pressure, and the judicious use of human albumin or whole blood may be indicated. Increasing attention is being given to the importance of electrolytes in maintaining adequate cardiac function. Certain instances of circulatory failure in postoperative gastorintestinal cases may be related to the loss of potassium. Ventricular premature beats in patients in whom there has been prolonged vomiting, diarrhea, intubation and diabetic acidosis may respond to potassium salts in doses of from 4 to 6 gm. daily by mouth.

The surgical treatment of congenital heart disease has made rapid strides with surgical relief for patent ductus arteriosus, Tetralogy of Fallot, coarctation of the aorta and for vascular ring. In rheumatic heart disease, commissurotomy for mitral stenosis has been performed by Bailey and his group.[31] The operation of Sweet and Bland[32] to reduce pulmonary edema by anastomosis of the azygos and pulmonary veins needs further evaluation. Cossio[33] devised a valvulotome which could be inserted through the internal jugular vein in the neck under local anesthetic and a portion of the tricuspid valve could be removed, the production of tricuspid insufficiency relieving orthopnea at the

expense of more congestion of the liver and extremities. Similar results were obtained by ligation of the inferior vena cava. Surgical resection of the left auricular appendix in patients with mitral stenosis, auricular fibrillation and systemic embolism has been carried out in an attempt to prevent further embolism.[34] This is important since Laws and Levine showed that 11.5 per cent of deaths in 148 cases of rheumatic heart disease were due to emboli.[35]

Sympathectomy is useful in the symptomatic relief of hypertension. Ordinarily congestive heart failure is considered as a contraindication; however, Chavez[36] reported success in eight of eleven cases so treated with subsidence of heart failure and significant decrease in blood pressure. Many of these patients resumed a normal life and remained well when followed for a period of from one to three years.

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CALLS FOR SUPPORT OF BETTER WORLD HEALTH PROGRAMS

There is likely to be a great demand for qualified American medical personnel to aid in the overseas health programs being conducted by the World Health Organization of the United Nations, according to Edward J. McCormick, M.D., Toledo, Ohio.

Dr. McCormick, a member of the Board of Trustees of the American Medical Association and a member of the United States delegation to the third WHO assembly in Geneva, Switzerland, last May, said these programs demand the full support of the American medical profession. He characterized the projects as "an essential part of the overall effort of the freedom-loving nations of the world to create conditions which will provide a firm foundation for a lasting peace."

"Writing in the October 7 *Journal of the A. M. A.*, he said: "The World Health Organization is engaged in a gigantic task. It is concerned with raising standards of medical education, fortifying national health services, assisting in control campaigns against infectious diseases and codifying and classifying medical information of international importance.

"The WHO works closely with the World Medical Association, composed of thirty-nine national medical associations, including the A.M.A., on technical problems. It works with governments in raising health standards in member countries. The WHO is meeting a real need in this shrinking world in fulfilling the obligations of an international public health agency."

The WHO was formed in June 1946 and its constitution recognizes that the "health of all people is fundamental to the attainment of peace and security and is dependent upon the fullest cooperation of individuals and states." At the third assembly, delegates were present from fifty-seven member states. All of the members of the Soviet block, with the exception of Poland, have withdrawn, and Poland did not send a delegate.



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Clinical Conference

CLINICAL PATHOLOGICAL CONFERENCE

St. Louis University School of Medicine

HISTORY

A 29 year old white male was admitted to St. Mary's Hospital on June 17, 1949, with history of abdominal pain, nausea, anorexia, weight loss, weakness, pain in left shoulder and fever of about six weeks duration. Onset was May 2, 1949, with pain in the left epigastric region and left lower chest.

The patient was examined for probable rheumatic fever. The doctor stated that on fluoroscopic examination it was noted that the left diaphragm was lower than the right, was smooth and did not move much. The leukocyte count was 20,000 with a sedimentation rate of 100 per cent. Tuberculin patch test was negative. His temperature was elevated to 102 degrees F. Under salicylate therapy the pains were relieved and temperature reduced to 99 F.

Past History.—The past history was noncontributory. Systemic history revealed diarrhea with passage of blood and mucus until one week prior to admission. The diarrhea is said to have been started by an enema. There was some burning on urination and nocturia of two times.

Family History.—There was a family history of rheumatic fever in the father, who is living and apparently well. It was otherwise non-contributory. Geographic history revealed that the patient saw military service in the South Pacific; however, there was no history of any illness while in service.

Examination.—Admission examination revealed a well developed, well nourished young white male in no acute distress, but pale. Sclerae were clear. Tongue was coated and dry. Except for a few small nontender inguinal nodes, there was no other adenopathy. There was no limitation, tenderness or crepitus in the left shoulder joint. Heart tones were good, regular and no murmurs were heard. The lung fields were clear. The abdomen was flat with no tenderness. The liver, spleen and kidneys were not palpable. Fullness over the left lumbar muscle with left costovertebral angle tenderness was noted. Blood pressure was 115 systolic and 70 diastolic, temperature 98 F., pulse 80 and respirations 16.

Laboratory Examinations.—Urinalyses were consistently negative with the specific gravity from 1.006 to 1.035. There were occasional red cells and hyaline casts noted. Erythrocyte count varied from 3.35 to 4.62 M, hemoglobin was from 9.2 to 12.0 grams and the leukocyte counts fluctuated between 12,000 and 20,000 with differential on entry of 9 band forms, 69 segmented, 16 lymphocytes, 1 eosinophil and 5 monocytes. There was no essential change except eosinophils as high as 4, and monocytes up to 10. Sugar was 107 mg. per cent, nonprotein nitrogen 26 mg. per cent, cholesterol 109, cephalin flocculation twenty-four hours 2+, forty-eight hours 3+, and thymol turbidity 3.5 U. Glucose tolerance curve was normal. Kahn reaction was negative. Diastase was 60, plasma proteins 6.03, albumin 3.69 and globulin 2.34, alkaline phosphatase 3.0 U. Agglutination tests were all negative but complement fixation for amoeba was 4+. Stool examination, urine and blood cultures revealed nothing specific.

Course in the Hospital.—Temperature rose to 100 F. on June 18 and continued between 99 F. and 100 F. Pulse ranged between 80 and 100. Appetite was good on admission and general condition remained stationary.

The patient was seen by another physician on June 23, 1949. Under the impression of abscess either cortical or subdiaphragmatic, the patient was cystoscoped on June 24. The urologic report was "On two attempts to fill left kidney there is a filling defect, and by putting patient down and injecting dye under pressure a pyelogram was made."

On June 27, at 4:30 p. m., the patient complained of weakness, general malaise, nausea and substernal pain radiating to the neck region. Blood pressure was 90/60. Pulse was weak and the skin clammy. At 7:25 p. m., the blood pressure was 70/45. Pericardial friction rub was noted in the apical area and rigidity of the left rectus abdominal muscle. At 9:45 p. m. examination of the left loin showed no evidence of retroperitoneal mass suggestive of hemorrhage. Temperature rose to 101.5 F. with rise in pulse rate to 130.

On June 28, the patient was comfortable, but any movement made him extremely short of breath. Heart tones were distant.

On June 29 tenderness on the right side of the abdomen with muscle guard was noted. The liver extended from 4 to 5 cm. below the right costal margin. Heart tones were more distant.

On July 3 the patient complained of a pulling sensation and pain in the epigastrium extending straight to the back. Definite fullness was noted in the epigastrium toward the left. The liver was palpable 8 cm. below the right costal margin and was smooth and tender. The chest was examined anteriorly and dullness extended up to the fourth intercostal space on the right with absent breath sounds and on the left the dullness extended high into the axilla with absent breath sounds. Heart tones were distant. There was no peripheral edema.

On July 4 left thoracentesis was done. Approximately 650 cc. of clear straw colored fluid was aspirated. The patient complained of bilateral chest pain with radiation to the neck. Morphine (gr. 1/6) was given every two hours without much effect. Blood pressure was 95/60. Respiration was shallow and jerky and his condition was critical.

Published in *The Bulletin*, St. Louis University Hospital. Vol. 2, No. 1, January, 1950.

On July 5, at 6:45 a. m., blood pressure was 78/58, pulse imperceptible, heart tones inaudible. At 10:00 a. m., pericardial tap was done and approximately 100 cc. of sanguinous fluid was removed. Blood pressure was 98/60. The patient's condition was somewhat better. At 6:00 p. m. blood pressure was 100/70.

On July 6 the patient was conscious and rational. Pulse was weak and respiration shallow; blood pressure, 80/60. At 8:35 a. m. he suddenly developed gasping respiration, became comatose, pupils became dilated and he expired at 8:45 a. m.



Fig. 1.

Other treatments included penicillin, streptomycin, aureomycin, salicylates, blood transfusions, parenteral fluids and digifolin.

Chest x-rays were negative and fluoroscope on June 20 showed both diaphragms to move equally. Pyelograms on June 24 revealed normal pyelogram and ureterogram on the right. On the left there was some asymmetry with elongation of calyces, superiorly and inferiorly, and a hesitation in filling of the superior calyx, but there was not sufficient evidence for diagnosis of a space occupying mass. Kidney, pelvis and ureter were normal.

On June 30 chest x-ray showed accentuation of markings in both bases, especially in the left. Cardiac shadow showed an increase in transverse diameter since the previous examination.

The electrocardiogram on entry was normal and on June 28 showed a sinus tachycardia, left axis deviation and T waves of low amplitude throughout with a diphasic T in CFIV.

The bacteriology findings on the pleural fluid and pericardial fluid were negative. Pathologic examination on the pleural fluid showed mesothelial reaction.

DISCUSSION

Ralph A. Kinsella, M.D.: Here is a young man with loss of appetite, weakness and pain in the left shoulder. He had fever. He began to get sick about four or five months before he came to the hospital. The pain was on the left side of the body, below the lower left costal margin and the lower part of the chest and the upper part of the left abdomen. And so with that as the chief complaint, he entered the hospital. The examination does not throw much light on this pain. There are some inguinal nodes but they were not impressive to the person who made the examination; the heart seemed to be all right as were the lungs and the abdomen. They could not feel any of the abdominal organs. The report stated there was some fullness over the left lumbar muscle but makes no mention as to whether that fullness is sensitive, or the site of the pain. The patient continued to complain of this pain and his blood pressure was extremely low. A pericardial friction rub near the apex of the heart was discovered. He had rigidity of the upper left rectus muscle and there is a statement that an examination of the left loin by Dr. W. F. Melick showed no evidence of retroperitoneal mass suggestive of hemorrhage. That is a negative statement and until now there has been no evidence that identifies the pain that made this patient so ill. Then he had a pulling sensation on July 3 that went straight to the back, and definite fullness in the epigastrium on the left side. The liver became palpable and it was found that he had flatness and evidence of some occupation of the left pleural cavity which removed the breath sounds. So on that basis, 650 cc. of clear fluid was removed and then Dr. J. L. Mudd took some fluid out of the pericardial sac. There is a note here that he had pains radiating to the left shoulder.

The point is interesting because in any condition which affects the left diaphragm, whether it is pneumothorax, diaphramatic hernia, herniation of the stomach or in certain operations for carcinoma of the stomach in which there is a shortening of the esophagus with pushing on the left diaphragm, the radiation of the pain to the left shoulder is a constant thing. Now here is a person who is "done in," one might say, by something which caused severe pain in the left upper abdomen, caused him fever and eventually caused his death.

On July 6 the patient was conscious and rational, pulse was weak, respirations shallow; suddenly he gasped for breath, went into coma and died in ten minutes. The treatments that he received were treatments aimed at possible infection. The pleural fluid showed a few lymphocytes in the pathologic specimen. That means a great quantity of the fluid was centrifuged, the cells were fixed and imbedded

and then examined as though it were a section of tissue, and the statement is made that there was mesothelial reaction. I think we will have to get a little more explicit statement from the Department of Pathology about that.

Here, then, is a case in which it looked as though a great many things were done during the life of a patient to make a diagnosis and the result of these efforts was negative information. Yet something obviously was occupying the left upper retro-abdominal area which, for a long time, had no connection or no influence on the behavior of the left pleural sac or the pericardial sac. But in the last few days of life, it produced a drastic reaction of those areas resulting in the outpouring of fluid in the pleural cavity and in the pericardial cavity. This extension across the diaphragm, if it is a fact that the original illness was below the diaphragm, is a fairly common event; for example, in perinephritic abscess on the right side or on either side or in retro-appendiceal abscess which would be on the right side. It may happen that the inflammation spreads upward and eventually the pleural cavity on that side reacts with an outpouring of fluid. In the same way infectious processes underneath the diaphragm originating from the liver or infectious processes in the liver itself may be so extensive as to cause migration of the reaction through the diaphragm into the pleural cavity.

It might not be so easy to trace a migration from below the diaphragm into the pericardial cavity. The things that might cause death and originate in the general area described in the outline are not numerous.

I wonder if anybody has any idea what sort of disease this man had. He was investigated for tumor in the area of the kidney. Dr. Melick, you found nothing that made a diagnosis in that area did you?

W. F. MELICK, M.D.: Here is something that might help you. This event on June 27 was a rather dramatic thing. He went into severe shock and his pulse and blood pressure were imperceptible until after the blood transfusion. But prior to that, on the first physical examination, there was an impression that there was perhaps a space occupying mass in the left side which was not definite. In other words, cystoscopy gave negative findings and after an attempted pyelogram, the left kidney pelvis did not fill on two attempts and it was only by putting the patient in extreme Trendelenburg position and injecting dye into the kidney under pressure that a pyelogram was obtained. The pyelogram showed only a filling defect. Now, if you will note, the Urological Department and the Radiology Department disagreed. They report that on the left there is some asymmetry with elongation of calyces, superiorly and inferiorly, and hesitation in filling of the superior calyx, but it is not sufficient evidence for a diagnosis of a space occupying mass. On physical examination the picture was not quite what one would have with a cortical or with a perinephritic abscess, and yet the x-ray certainly suggested that there was a filling defect and that there was perhaps a mass pressing on the kidney.

DR. KINSELLA: Was that space occupying mass in the kidney?

DR. MELICK: No. It was more of a pressure on the kidney, not in the kidney.

DR. KINSELLA: Was a clinical diagnosis arrived at with any satisfaction?

DR. MELICK: No, it was not.

DR. KINSELLA: Do you remember any particular diagnoses that were considered?

DR. MELICK: A cortical renal abscess, a peri-

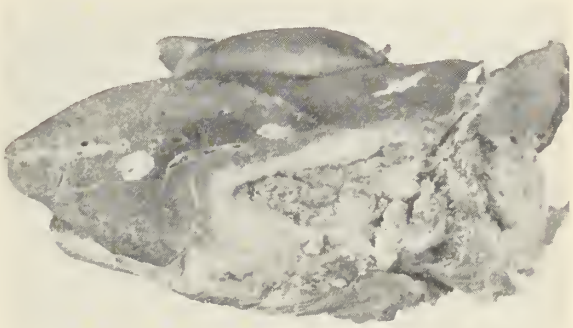


FIG. 2.

nephritic and subdiaphragmatic abscess were considered, but then, as I said, with this dramatic episode he really became too ill to do anything. He actually went into shock and that is why this left renal and costorenal area was reexamined to see if there had perhaps been hemorrhage and to see if there had been any increase in the size of the mass. Clinically, there had not been.

DR. KINSELLA: Dr. Broun, will you comment on this patient?

G. O. BROUN, M.D.: First of all, it does look from the report that we are dealing with some type of infection because of the fever and leukocytosis, and apparently the patient was fairly comfortable up until the time of the sudden episode that was described.

I would like to ask Dr. Melick whether the patient was fairly comfortable between the time of the pyelogram which I believe was June 23, and the going into shock on June 27.

DR. MELICK: His general condition was good. He was up and around.

DR. BROUN: Now, we do note there is an increase in the leukocyte count from about the time of his going into shock 12,000 to 20,000. There is actually a slight drop in the red blood cell count, but he was transfused about this time so that the actual counts are disturbed by the giving of transfusions. So one cannot know whether he really had a drop in erythrocyte count that is significant other than that drop from 4,600,000 to 3,200,000. Since the first erythrocyte count was only 3,300,000, one somewhat questions the 4,600,000. And so there is no evidence of severe hemorrhage on the basis of the actual

counts. I do notice that a complement fixation test for amoebiasis was done and reported 4 plus. There is a note of enlargement of the liver and when we come to study the liver functions there is some evidence of disturbance.

On June 18 we noticed a cephalin flocculation of two plus in twenty-four hours and three plus in forty-eight hours. Thymol turbidity is, however, within normal limits. There is no jaundice, the icterus index being only 10. The blood cholesterol of 109 mg. is really quite low, and this finding is not

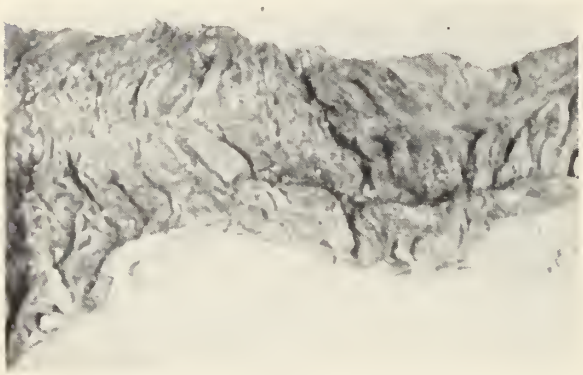


Fig. 3.

suggestive of obstruction in the biliary region. On June 23 a normal glucose tolerance test is reported. Retention of bromsulpthalein is rather well marked, 34 per cent and 27 per cent. Cephalin flocculation, however, is now better than it was before, namely, negative in twenty-four hours, and one plus in forty-eight hours. Thymol turbidity, icterus index and blood diastase studies are normal, cholesterol is still low, alkaline phosphatase is only 3 units. The prothrombin time is 100 per cent. I do not think the liver function tests indicate any great impairment of the parenchyma of the liver, but I do not think that those findings would exclude the presence of an amoebic abscess, which is usually walled off and might not greatly depress the total liver function. I would not expect the parenchyma of the liver to be badly damaged, and I do not think one can rule out a possible liver abscess. The abscess might be pyogenic or it might be amoebic. Also, of course, the abscess could be in or around the kidney or it could be that it started in the liver. The appearance of shock and the rapid downhill course from that time on looks like something happened suddenly.

There are several explanations that are possible. It might be that there was a localized collection of inflammatory products which suddenly ruptured and disseminated. One is impressed by the curious thing that happened in the chest about that time. The previously clear chest showed fluid and there is a suggestion of progressive cardiac enlargement and development of pericarditis. These might represent a spread of the inflammation although the fluid that was aspirated from the pleural cavity was described as clear and straw colored, not purulent.

It does not look like a purulent abscess spread into the thoracic cavity, but it is possible that some effects from this area below the diaphragm may have brought about this change in the chest. The electrocardiogram does not give much evidence of coronary occlusion as a possible cause of the shock that developed. We find on June 28, "Myocardial damage, sinus tachycardia and left axis deviation."

I think that as far as I can judge this case, the things we have to think of would be a pyogenic abscess of the region of the left kidney or a pyogenic or amoebic abscess of the liver which became disseminated toward the end. Another thing that may have happened in the course of this shocklike picture is hemorrhage. It might have been that a dissecting aneurysm was ruptured, although he was rather young for that type of thing, or the infection itself may have eroded a vessel to cause hemorrhage.

Finally, of course, there is a possibility of neoplastic changes in this area, particularly the hypernephroma, which certainly might lead to various changes such as are described. One thing we have to remember about the hypernephroma is that it has a great tendency to grow through the renal veins into the inferior vena cava and to break off emboli which tend to go up into the lungs and could

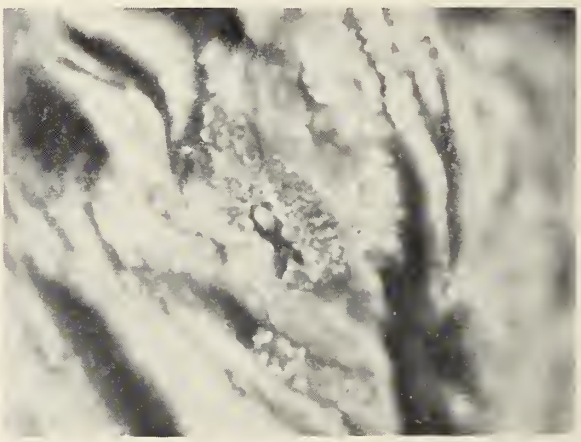


Fig. 4.

produce a sudden shocklike picture and lead to sudden death.

Now, that is another possibility I believe we ought to think of seriously. We have had one or two cases like this at previous pathologic conferences when we were really dealing with a hypernephroma. The tumor grew into the renal veins and then into the inferior vena cava. Pieces of tumor break off, go up to the heart, go out to the lungs and produce a picture that would be similar to this.

I think we may have to put a little stress on the four plus complement fixation for amoebiasis, although I do not think it is fool proof. I have seen some false positive tests. If we did not have that, I would perhaps be a little more in favor, in fact, I think I am still in favor of the idea that it might be

a hypernephroma that grew into the inferior vena cava and threw up some emboli into the lungs.

JOSEPH LUCIDO, M.D.: It is well to emphasize that this patient saw service in the South Pacific and had diarrhea with blood and mucus one week prior to admission.

CLINICAL DIAGNOSES

Amoebic hepatitis.
Amoebic abscess of the liver.
Colitis, ulcerative (amoebic?).
Pericardial effusion.
Pyrogenic abscess of the left kidney.

DR. BROUN'S DIAGNOSES

Hypernephroma with metastases.
Pyogenic or amoebic abscess of the liver with dissemination.

VINCENT MORAGUES, M.D.: The significant autopsy findings in this case were as follow:

The skin and mucous membranes were pallid and the sclerae had a slight icteric discoloration. The right pleural cavity contained 100 cc., and the left cavity 300 cc. of a thin, straw colored fluid. No adhesions were present. The pericardial cavity was greatly distended with about 500 cc. of a thin, brown fluid. A thick layer of fibrinous exudate covered the inside of both pericardial layers (fig. 1).

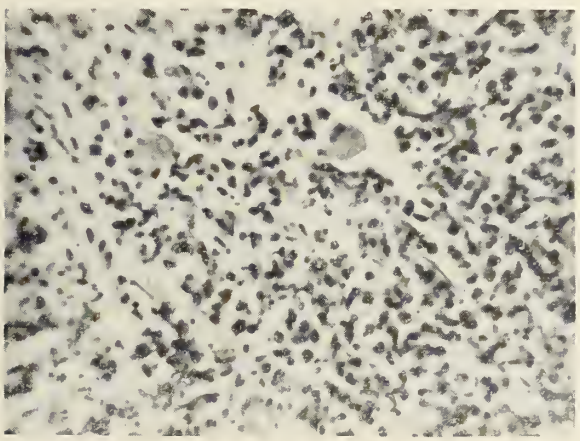


FIG. 5.

The apex of the heart was firmly attached to the parietal pericardium and to the diaphram. On separating the heart, communication was established between the pericardial and abdominal cavities, and a thick, brown, "anchovy sauce" type of exudate poured into the pericardium. The peritoneal cavity contained 700 cc. of thin, brown fluid.

The liver weighed 2,550 grams. The left lobe was firmly attached to the diaphragm and contained an abscess cavity, 14 cms. in its greatest diameter, filled with a dirty brown, "anchovy sauce" exudate (fig. 2). The spleen was large, congested and soft. It weighed 600 grams. In the cecum and ascending and transverse colon there were several small ulcerations (4 to 8 mm.) with undermined edges and dirty necrotic bases (figs. 3 and 4). The rest of the postmortem examination was noncontributory.

Microscopic notes: Sections from the ulcers in the colon revealed a polymorphonuclear reaction on the surface and a mild mononuclear reaction in the deeper layers. Amoebae were present in the deeper layers of the ulcers (fig. 5). The wall of the liver abscess was made up of dense fibrous tissue covered by a thick layer of fibrin (fig. 6.). Few inflammatory cells were found in the contents of the abscess but an occasional amoeba was present. The spleen revealed edema, congestion and many polymorphonuclear cells. The pericardium was covered

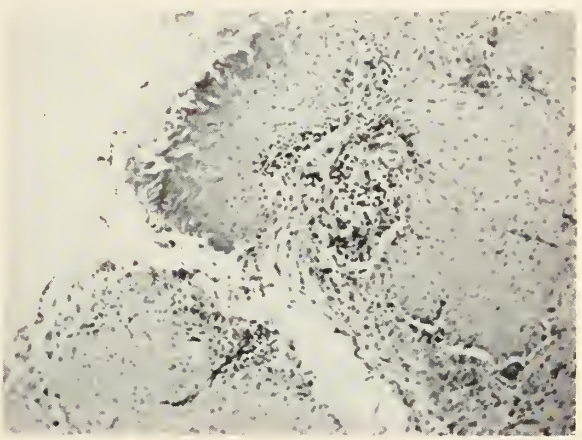


FIG. 6.

with granulation tissue and much fibrin; there were some eosinophils present.

FINAL ANATOMIC DIAGNOSIS

Amoebic abscess of the left lobe of the liver.
Amoebic ulcerations of cecum and ascending colon.
Fibrinous pericarditis.
Acute splenitis.
Atelectasis of lower lobes, bilateral.

H. C. SWEET, M.D.: Did you find amoeba in the liver abscess or pericardium?

DR. MORAGUES: In the liver abscess only an occasional amoeba could be found. The pericardium did not show any, but the type of reaction was essentially the same so that we did not hesitate in assuming that the pericarditis was of the same etiology. The type of autolytic reaction without purulent exudate in it was the predominating feature. It was felt that it was the same pathologic process spreading from the abscess of the liver.

The sections I demonstrated show an absence of polymorphonuclear cells and I did not run across any clusters of pyogenic organisms like staphylococci or other Gram positive cocci. I do not know what the cultures that were taken at the autopsy revealed but the report stated that a number of cultures had been negative; of course, these were blood cultures for the most part.

DR. KINSELLA: Does anyone know the incidence of amoebic abscess in the left lobe of the liver?

DR. BROUN: We had one case of a pancreatic cyst

formation from rupture of an amoebic abscess of the left lobe of the liver into the pancreas.

Dr. Moragues: Yes. The one Dr. Broun is referring to had gone into a big pancreatic cyst. That abscess had descended into the pancreas after rupture and amoeba were found.

Dr. Broun: Pericardial fluid in the record was described as clear fluid, but in the autopsy report, the fluid was dirty brown.

Dr. Moragues: The pericardial fluid was a peculiar dirty brown color, resembling anchovy sauce. I do feel that in this case the pericardial infection was definitely amoebic. The pleural fluid, I think, was probably on a mechanical basis, for this man had a definite chronic passive congestion or acute passive congestion of the liver, probably from the pressure against the heart together with the low blood pressure. The liver was congested throughout, even away from the abscess.

Dr. Kinsella: The stool was not examined?

Dr. Moragues: The stool had been examined earlier and it had been negative. Concerning Dr. Kinsella's question about the rare location of these abscesses on the left (the usual location is in the right lobe), it has been explained on the basis of streaming of the portal blood from the inferior mesenteric vessels into the right rather than the left lobe of the liver.

Acknowledgment: We are indebted for the photographs to Mr. Anthony B. Freitag of the St. Louis University School of Dentistry.

DOCTOR BLAMES EYES FOR 25 PER CENT OF HEADACHES

Eyes are a cause of headache in 25 per cent of patients, a Detroit ophthalmologist reported in the October 14 *Journal of the American Medical Association.*

"More patients consult medical clinics because of headaches than for any other single complaint, and for the same reason they most frequently consult an oculist," said Dr. Albert D. Ruedemann, professor of ophthalmology at Wayne University School of Medicine.

"There is probably more medicine sold for headaches than for any other condition. Some of the large drug concerns build up tremendous fortunes by relieving the ordinary headache.

"It is the great social excuse for avoiding disagreeable engagements. While it is easy to label the patient neurasthenic or hysterical or just nervous, the headache may be the forerunner of a serious intracranial disease."

He said most eyes are overused, either from too much use or from use under poor working conditions.

He listed as possible victims of faulty eye functioning: The girl with a nervous breakdown, the child who is inattentive, the person in business who has a headache at noon which is relieved by lunch and then has a recurrence about 3 or 4 o'clock, the clock watcher, the student who cannot concentrate and the convalescent patient who reads in bed and has a headache.

"They may require medical exercises, surgical treatment, glasses or all three," Dr. Ruedemann said.

"Nearsighted persons do not have headache or head pain unless the nearsightedness is unequal or severe or unless they are abusing their eyes. Nearsightedness in combination with a muscle error may cause trouble.

"Farsighted persons are apt to have frontal headaches which are moderate to severe and are present almost daily in the afternoon or evening. Farsightedness sometimes is definitely associated with certain types of work. The diagnosis is easy to make and the treatment is a pair of glasses used therapeutically and not as an aid to vision.

"If there is an inequality in the amount of error in the two eyes the pain may be severer over one eye and more common as a cause of headache.

"Neck pain is more frequently due to ocular muscle imbalance than to anything else. The neck muscles function primarily to move the head so that the eyes will be in a position to see."

Dr. Ruedemann suggested that every child before entering the first grade should have his eyes tested so that he can be protected against abusing inadequate or deficient eyes.

PREMATURE CENTERS REDUCE INFANT MORTALITY RATES

The prematurely-born child has a better chance of survival when immediately sent to a Premature Center, with its special facilities, according to a study reported in the October 14 *Journal of the American Medical Association.*

The study was made by Dr. Henrietta M. Herbolsheimer, medical administrative assistant in the Illinois Department of Public Health, Springfield, Ill. It compared the experience in one Chicago institution—University of Illinois Research and Educational Hospitals—and 164 hospitals outside of Chicago during 1948.

A total of 5,459 premature infants, as determined by a weight of less than 5½ pounds at birth, were involved. There were 1,264 deaths.

Dr. Herbolsheimer divided the hospitals into four categories. At the top were three Premature Centers (Illinois Department of Public Health program) with complete facilities and medical and nursing staff trained in the handling of prematurely born infants. Other hospitals were divided into three types, one segregating premature infants in a separate nursery and two making no separation. A "1, 2, 3" classification was based principally on the staff provided.

The report showed the fatality rate per 1,000 white single-born premature infants to be: In Premature Centers, 190; in type 1 nurseries, 217; in type 2 nurseries, 243; in type 3 nurseries, 284. The over-all fatality rate was 236. This group was selected for an analysis of mortality because it provided the largest number of cases and a population of the greatest possible homogeneity.

Commenting on this, Dr. Herbolsheimer said: "The distinctly lower fatality rates attained in the Premature Centers and type 1 nurseries, as compared with those of types 2 and 3, are in accordance with expectations which emerge from the belief that better equipment and better trained personnel can bring about improved results."



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(1) Thorn, G.W.; Quinby, J.T., and Marshall, C., Jr., Ann. Int. Med. 18:913 (June) 1943.
(2) Orent-Keiles, E., and Hallman, L. F., Circular No. 827, United States Department of Agriculture, Bureau of Human Nutrition and Home Economics, Agricultural Research Administration, Dec., 1949.

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Case Report

CASE REPORT

ACUTE PANCREATIC NECROSIS ASSOCIATED WITH XANTHOMATOSIS AND DIABETES

ROSCOE F. MORTON, M.D.,
ARKANSAS CITY, KANSAS

Fitz,[1] who described acute pancreatitis as a clinical entity in 1889, distinguished suppurative, hemorrhagic and gangrenous forms, the latter two being rapidly fatal. Self digestion due to activation of its secretion as a cause of necrosis of the pancreas was first suggested by Claude Bernard.[2] Obstruction by stone with penetration of bile into the pancreatic duct thereby activating the pancreatic enzymes was demonstrated clinically by Opie.[3] Archibald[4] pointed out that even in the absence of disease of the biliary system, undue resistance at the papilla might force bile into the duct of Wirsung. Deaver[5] suggested that infection of the gall bladder or ducts might travel by way of the lymphatics to the pancreas, producing acute pancreatitis. Thus there are three explanations of the cause of acute pancreatic necrosis: (a) activated pancreatic enzymes liberated from the ducts, (b) infection ascending from the bile ducts or (c) infection spreading from the lymphatics. Most investigators agree with Boyd[6] that multiple factors are responsible in most cases.

Disordered fat metabolism was first associated with diabetes when phlebotomy revealed "creaminess" of the blood. Warfield[7] explained the rarity of diabetes in hemorrhagic pancreatitis by the fact that the patients live too short a period for it to develop. Umber[8] stated that diabetes can develop following acute pancreatitis only if there exists a congenital inferior insulin mechanism. According to Joslin,[9] the diabetic patient is more subject to acute pancreatitis than the nondiabetic. Schumacker[10] found seventy-eight instances of glycosuria in 700 cases of acute pancreatitis. Severe diabetes is the only disease in which lipemia is frequent enough to be of special significance.

XANTHOMA DIABETICORUM

The association of diabetes with a hyperlipemia is necessary for the appearance of diabeticorum xanthoma. Xanthomatous eruptions in diabetics are uncommon. Their rarity is probably because the body attempts to keep the lipids at a constant level. The experiment of Schaaf[11] points out that any disturbance of the ratio of the esters to the total cholesterol affects the stability of the emulsion and results in a precipitation of one or more of its constituents. Local factors including trauma determine the localization of the lesions in xanthoma tuberosum, while the dissemination of the lesions in xanthoma diabeticorum is probably caused by damage to the reticulo-endothelial system. The lesions usually appear suddenly and favor the extensor surfaces, buttocks, palms and the soles. In many cases their appearance first suggests the presence of diabetes. The lesions may be small, firm papules, nodules, plaques or in rare cases (Wise and Garb[12]) keloidal-like linear lesions. During the eruptive phase itching is usually intense. The color is characteristic with an inflammatory element which is absent in other types of xanthoma. Reddish with yellowish or chamois-colored centers, the nodular lesions may stimulate pustules.

The pathology of the lesions is similar to other xanthomas with the exception of a scarcity of foam cells, fat laden histiocytes and the presence of an inflammatory reaction. The blood cholesterol, fatty acids and neutral fats are greatly increased. In cases without pancreatic involvement, the lesions respond to dietetic control and insulin, but recurrences are common and recalcitrant cases are not unknown.

The association of xanthoma diabeticorum with acute hemorrhagic pancreatitis is unusual. In the patient described the characteristic lesions were located on the left arm, left knee and dorsal surfaces of the feet. The presence of a fairly high blood cholesterol (830 mgs.) was significant. Unfortunately no lipid determination was obtained.

CASE REPORT

P. M., a 29 year old white, obese female waitress, married, was admitted to St. Louis City Hospital on May 31, 1948.

On admission, temperature was 99 F., pulse 110, respiration 24 and blood pressure 130/80. Admission complaint was a history of para-umbilical pain which had a sudden onset twelve hours previously and continued in varying intensity. At times the pain "doubled her up." The pain which tended to radiate up into the epigastrium was not well localized. On admission she had just begun to notice some pain in the left shoulder. The pains at times seemed to spread down the left half of the abdomen and to a lesser degree to the entire abdominal area. She developed nausea and vomiting about twenty minutes after onset. Vomitus was clear liquid material.

Ten days before admission, an eruption of yellowish-orange nodules was noticed on her arms, legs and feet. Her last menstrual period, which ended two days before hospital admission, was normal in all respects. After admission a small amount of blood coming from the cervical canal was discovered. "Ovary" trouble on the left side two years previously had caused her to have slight pain in her left side, but nothing like the present illness. A pregnancy five years previously resulted in a normal term delivedy.

Skin examination revealed an eruption of small yellowish conical papules grouped about the elbows and knees with a few scattered on the arms, legs, abdomen and soles. The lesions were for the most part discrete papules, firm cream or yellow in color. Some

From the third medical unit, St. Louis City Hospital.

of the lesions were surrounded by an erythematous zone.

The heart and lungs were normal. The abdomen was protuberant with a large amount of fat present. Bowel sounds were hypo-active and there was a tenderness in the left upper quadrant and to a lesser degree in the left lower quadrant. Rebound tenderness was referred to the left upper and lower quadrants. No masses were palpable. Voluntary spasm was present in the entire abdomen but more so in the left half. Neurologic findings were normal.

Laboratory.—X-ray of chest and upright film for air under the diaphragm were normal Urine on admission contained 4 plus sugar, 1 plus albumin and 2 plus acetone. White blood cells were 22,000 with 70 per cent polymorphonuclear cells of which 12 per cent were stabs. Red blood count was 5,050,000, Hgb. 14.5 gms. Kahn test was negative. Blood sugar was 308 mg. per cent on May 31, 1948, and 425 mg. per cent on June 3. Serum diastase was 1,900 units. On June 1 the blood cholesterol was 830 mg. per cent. Serum proteins totalled 7.20 with albumin 4.15, globulin 3.05, albumin-globulin ratio 1.35. On the day before death the blood urea nitrogen was 46, blood chlorides 416, CO_2 combining power 48 volume per cent.

Course in Hospital.—She remained in the hospital three days. Temperature was 99 F. until the evening of the second day when it suddenly rose to 105 F. and remained the same for approximately forty-eight hours until death.

Treatment.—Since the patient was considered a surgical risk, therapy consisted of fluids, sedation to prevent restlessness, fractionated doses of regular insulin, whole dried blood, plasma, penicillin and streptomycin. During the first hospital day she vomited a moderate amount of yellowish liquid several times. On the second hospital day projectile vomiting occurred. On the third day, since she was thirsty, uncomfortable, restless, and slightly cyanotic, oxygen was administered. When the blood pressure dropped to 100/30, two units of plasma and 500 cc. of whole blood were administered with restoration of the pressure to 136/30. Penicillin and streptomycin were given for the high fever which continued during the fourth day. She was restless, the urine output was small and rust colored; profuse sweating and mental confusion developed. In the afternoon she became cold, cyanotic and respirations became shallow and irregular before exitus. Urine was followed closely and at no time was she aglycosuric.

Autopsy was done and findings were as follows:

Pancreas: Hemorrhagic pancreatitis.

Peritoneum: Serosanguinous peritonitis (1,000 cc.).

Skin. Xanthomatosis.

Heart: Left auricle, xanthomatosis.

Liver: Fatty metamorphosis, advanced (4,040 gm.).

Spleen: Xanthomatosis.

Kidneys: Fat embolism.

Lungs: Chronic passive congestion, advanced.

Stomach: Congestion.

The peritoneal cavity contained approximately 1,000 cc. of serosanguinous fluid. The endocardium of the left auricle contained many yellowish plaques diffusely spread over its entire surface.

Surrounding the pancreas was an extensive area of hemorrhage and necrosis which extended into the root of the mesentery of the colon. This area of hemorrhage also extended superiorly to the cardia of the stomach. All the tissue of this region was infiltrated with a hemorrhagic necrotic firm mass. The pancreatic tissue in some areas was pale white in color. The lobules seemed to have been separated by small white areas of fibrous tissue which appeared to be necrotic. The liver was yellow and pasty in appearance and extremely soft in consistency.

There was a considerable amount of hemorrhage around the left adrenal.

Microscopic examination of the heart revealed a large amount of fat tissue infiltrating the muscle fibers. The thickened endocardium contained numerous fat-laden histiocytes.

In the spleen tissue there was a striking increase in histiocytes, which were enlarged and carried large amounts of fat as well as finely granular material.

Peripancreatic fat containing swollen fat cells with blurred debris and brown pigment was found in the pancreas. Disintegrating fat cells were present in the trabeculi and peripancreatic tissue. Acini had characteristic arrangement, but individual cells were swollen. Islet cell nuclei took a deep basophilic stain. Between the lobules were fragmented cells in irregular acidophilic areas. Interstitial tissue was blurred and swollen and contained many large cells with vacuolated cytoplasm.

The cause of death was probably the result of the absorption of toxic split-protein products formed as a result of partial digestion of the pancreatic tissue. Secondary hemorrhage was an associated factor.

CONCLUSIONS

1. A fatal case of acute pancreatitis is described.
2. The association of diabetes and acute xanthoma diabeticorum is unusual.
3. According to Thannhauser, the disturbance of pancreatic function indirectly affects the fat metabolism of the liver. The resulting hyperlipemia produces the secondary xanthomatosis.
4. Patients with severe diabetes, hyperlipemia and secondary xanthomatosis usually respond favorably to insulin therapy. In this case the acute pancreatitis resulted in a severe hemorrhage which was the immediate cause of death.

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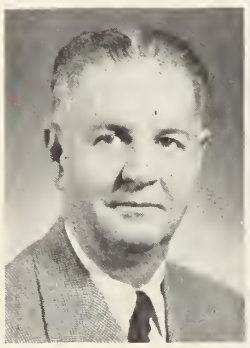
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PRESIDENT'S PAGE

November 7, 1950, is a red letter day in the history of these United States. On that day you and I and countless thousands of our fellow countrymen have an opportunity to go to the polling places and vote.

We may vote our own convictions and for the candidates of our choice.

We have heard and read of the way elections take place in many parts of the world. We know that in many of these places so-called free elections are anything but free. Yet we go merrily on our way, ignoring our heritage, and following the old adage "Let George do it."



In a recent survey made in Ohio, it was found that approximately 15 per cent of the medical profession was not even registered. We sincerely hope that such a situation does not prevail in Missouri.

A United States Senator, thirteen national Congressmen, seventeen State Senators and 155 members of the House of Representatives are to be elected on November 7. Doctors as citizens should not neglect this opportunity to help elect these public servants.

Go to the polling places on November 7, cast your ballot and see to it that members of your immediate family do likewise.

Wa Bloom

Editorials

CIVILIAN DEFENSE

The medical phase of civilian defense for the State of Missouri is definitely underway. In many places in the state it is beyond the blueprint stage and satisfactory set-ups are emerging rapidly.

Since in modern warfare, an overall arrangement between communities and the state as a whole is essential, plans are being made to integrate the work throughout the state. To facilitate this a committee of the Association is working out plans for the state and for communities. The Association committee is under the chairmanship of Carroll P. Hungate, M.D., Kansas City, who is working with Buford G. Hamilton, M.D., Jefferson City, State Health Commissioner, who was appointed by Governor Smith to the state committee on civilian defense. Other members of the Association committee are: Drs. Howard B. Goodrich, Hannibal; A. S. Bristow, Princeton; Jack E. Schiffmacher, Kansas City; George Thoma, St. Louis; William J. Shaw, Fayette; W. S. Sewell, Springfield; Buford G. Hamilton, Jefferson City; Raymond A. Ritter, Cape Girardeau; Samuel A. Grantham, Joplin; H. E. Petersen, St. Joseph; Curtis H. Lohr, St. Louis; B. Albert Lieberman, Kansas City; A. P. Rowlette, Moberly; Robert W. Conrad, St. Joseph.

The committee expects to have definite information and outlines of needed facilities to submit to members within the near future.

BLUE SHIELD INCREASES ENROLLMENT

More than a million persons were enrolled in the voluntary nonprofit Blue Shield medical care plans during the second quarter of 1950 to make this period the largest in enrollment history of the plans, according to Mr. Frank E. Smith, director. Blue Shield Commission, Chicago. Actual quarterly growth was 1,124,372, bringing June 30, 1950, Blue Shield membership to 14,414,760.

A total of 521,578 persons are enrolled in the two Missouri Blue Shield plans, an increase of 24,298 over the previous quarter of 1950. This total represents 13.26 per cent of the total population of Missouri, based on an estimated population of 3,933,000.

The seventy-one medical service plans operating in forty-one states and the District of Columbia enrolled 11.28 per cent of the combined population of those areas on June 30 and the five Blue Shield plans serving eight Canadian provinces had 7.59 per cent of their combined population enrolled.

SOUTHERN MEDICAL ASSOCIATION

The Southern Medical Association will meet in St. Louis, November 13 through 16, with the St. Louis Medical Society as host.

All meetings, exhibits and registration will be held in Kiel Auditorium, which will be general headquarters. Edwin C. Ernst, M.D., St. Louis, is general chairman for the session, and vice general chairmen are Drs. J. W. Thompson, Robert J. Mueller and Llewellyn Sale, St. Louis.

The first two days of the meeting will be occupied with general clinical sessions covering the whole field of medicine with each session followed by a question and answer period. Alphonse McMahon, M.D., St. Louis, is chairman of the committee arranging this program. The following two days will be devoted to meetings of the twenty-one sections with several conjoint meetings. The sections are on general practice, medicine, gastroenterology, neurology and psychiatry, pediatrics, pathology, radiology, dermatology and syphilology, allergy, physical medicine and rehabilitation, industrial medicine and surgery, surgery, orthopedic and traumatic surgery, gynecology, obstetrics, urology, proctology, ophthalmology and otolaryngology, anesthesiology, medical education and hospital training and public health.

Drs. M. Pinson Neal, Columbia; Robert A Moore, St. Louis, and Melvin A. Casberg, St. Louis, will preside at sessions in the general clinical sessions.

The Southern Chapter of the American College of Chest Physicians will meet conjointly with the Southern Medical Association, beginning sessions on November 12 and continuing through noon of November 13. Drs. Alfred Goldman, James L. Mudd and A. J. Steiner, St. Louis, are members of the committee on arrangements. Evarts A. Graham, M.D., will give an address at a luncheon meeting on November 13.

The Southeastern and South Central Sections of the College of American Pathologists will meet conjointly with the Section on Pathology of the Southern Medical Association on November 15 and 16.

The Gerontological Society will meet on November 12 and 13. Robert A. Moore, M.D., St. Louis, will be installed president at this session.

Organization and Economics

NEWS NOTES

Charles A. Brasher, M.D., Mount Vernon, has been elected the Missouri Governor for the American College of Chest Physicians for the years 1950 and 1951.

Oscar P. Hampton, Jr., M.D., St. Louis, spoke on "Shock and Compound Injuries in the Severely Wounded" at a postgraduate course in "Traumatic and Disaster Surgery" held at Oklahoma City under the sponsorship of the Oklahoma State Department of Health, the Oklahoma State Medical Association and the University of Oklahoma School of Medicine on October 2, 3, and 4.

James R. McVay, M.D., Kansas City, was reelected chairman of the Council on Medical Service of the American Medical Association at a meeting in Chicago, September 14 and 15.

Robert J. Mueller, M.D., St. Louis, will address the General Practitioners Study Club of Greater St. Louis on November 15 on "Significance of Headache to the General Practitioner."

Curtis H. Lohr, M.D., St. Louis, was elected regent of the American College of Hospital Administrators at a meeting in Atlantic City on September 19.

H. B. Stauffer, M.D., Jefferson City, spoke on "Allergy in Ophthalmology" at a meeting of the American Society of Ophthalmologic and Otolaryngologic Allergy held in Chicago on October 7.

Otis E. James, Jr., M.D., Kansas City, addressed the staff of the Lexington Memorial Hospital, Lexington, on "The Treatment of Common Fractures" on September 5.

Ira H. Lockwood, M.D., Kansas City, has been elected an honorary member of the Detroit Roentgen Ray and Radium Society, for "Outstanding contributions to medicine and the advancement of the science of radiology."

S. Albert Hanser, M.D., St. Louis, discussed "Recent Advances in Ocular Allergy" at a meeting of the American Society of Ophthalmologic and Otolaryngologic Allergy at Chicago on October 7.

Horace Wendell Soper, M.D., St. Louis, served as president of the National Gastroenterological Association at a meeting held in New York October 9 to 11.

Danely P. Slaughter, M.D., Chicago, spoke on "Cancer of the Head and Neck" before approximately 120 Missouri physicians at a meeting in Columbia on September 22, sponsored by the Ellis Fischel State Cancer Hospital, the Missouri Division of Health and the Missouri Division of the American Cancer Society.

R. H. Flocks, M. D., Professor of Urology, Iowa University School of Medicine, will discuss "Problems in the Diagnosis and Treatment of Urolithiasis" at the St. Louis Medical Society Auditorium at 8:30 p. m. on November 7, sponsored by the St. Louis Urological Society. The program is planned to be of interest to the general profession.

MUSINGS OF THE FIELD SECRETARY

Raymond Moley will be the featured speaker on Monday evening, November 27, 8:00 p.m., Gold Room, Hotel Jefferson, St. Louis, as a special program of the Mid-Continent Dental Congress. His subject will be "The Dead Hand of Government." Mr. Moley is a former Assistant Secretary of State, contributing editor of *Newsweek Magazine*, Professor of Public Law at Columbia University and author of syndicated newspaper columns. He is best known as an authority on American political and economic affairs. The medical profession is especially invited to attend this session.

"M. D. Participation in Health Councils" was the title for the program of a one day meeting on October 1 in Detroit, Michigan, sponsored by the Council on Medical Service of the American Medical Association and the Michigan State Medical Society. The discussion at this meeting indicated that the "Health Council movement" is gaining momentum throughout the entire United States. At present there are thirty-one states with organized state health councils, of which Missouri is one. The membership of practically all of these councils is made up of both professional and nonprofessional people. Some of them represent statewide organizations and agencies with health programs and others have individual memberships in the councils. The promotion and aid to local health councils is one of the major purposes of the vast majority of the thirty-one state health councils. These local health councils are attempting to bring coordinated efforts of local groups and individual citizens to bear on the solutions of specific health problems in their respective localities.

It was well pointed out that without the active participation and support of local physicians in these councils little progress can be expected. However, in many places, it seems that M. D. participation in both state and local health councils still remains a needed and desired commodity.

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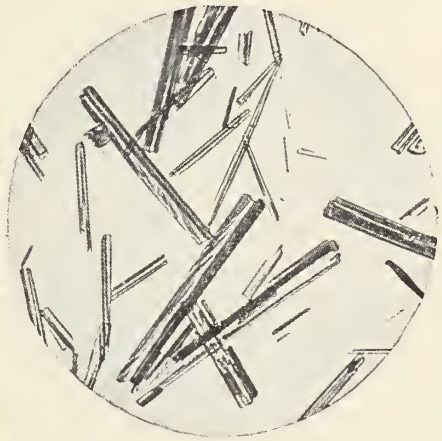
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Another M. D. leadership opportunity is being offered through the media of health councils.

The Missouri Academy of General Practice postgraduate meetings are now in full swing in seven areas over the state. Physicians in these areas receive individual letters and programs concerning the meetings in their particular areas. A great deal of interest has been shown in most of these programs up to date.

NEW MEMBERS

Barry, William B., Kansas City, Mo., Jackson County
Fowler, James W., Kansas City Mo., Jackson County
Jennison, Maurice H., Kansas City, Mo., Jackson County
Knox, Andrew C., Kansas City, Mo., Jackson County
McPhee, William R., Kansas City, Mo., Jackson County
McVay, James R., Jr., Kansas City, Mo., Jackson County
Moorhead, Jay O. C., Kansas City, Mo., Jackson County
Powell, Benson M., Kansas City, Mo., Jackson County
Stadnik, Louis J., Kansas City, Mo., Jackson County
Stratemeier, Edward H., Kansas City, Mo., Jackson County
Twin, Edward J., Wadsworth, Kansas, Jackson County

DEATHS

Weiterer, Herman L., M.D., St. Louis, a graduate of the St. Louis College of Physicians and Surgeons, 1894; honor member of the St. Louis Medical Society; aged 82; died August 29.

Shy, Milton P., M.D., Sedalia, a graduate of the Kansas City Medical College, 1900; member of the Pettis County Medical Society; Fellow of the American Medical Association; aged 77; died August 31.

Eudy, William T., M.D., Eminence, a graduate of the University of Louisville School of Medicine, 1909; member of the Carter-Shannon County Medical Society; aged 75; died September 10.

Uhlmann, Robert, M.D., Kansas City, a graduate of the Ludwig-Maximilians-Universitat Medizinische Fakultat, Munchen, Bavaria, 1910; member of the Jackson County Medical Society; aged 63; died September 13.

Disque, Andrew A., M.D., St. Joseph, a graduate of the Central Medical College of St. Joseph, 1902; honor member of the Buchanan County Medical Society; aged 73; died September 16.

Werner, Charles H., M.D., St. Joseph, a graduate of Ensworth Medical College, St. Joseph, 1906; honor member of the Buchanan County Medical Society; Fellow of the American Medical Association; aged 71; died September 17.

COMMITTEE ON PESTICIDES

A Committee on Pesticides has been established recently at the headquarters of the American Medical Association to study the health problems associated with the use of pesticides (insecticides, rodenticides, fungicides, herbicides and similar types of economic poisons). As part of its study on the safety and effectiveness of these chemicals, the committee is undertaking an intensive educational program to assist physicians and other health practitioners in recognizing and overcoming the difficulties which certain of the newer compounds present.

The first of a series of committee reports on the medical aspects of pesticides has been published in the *Journal of the American Medical Association* and reprints entitled "The Pharmacology and Toxicology of Certain Organic Phosporus Insecticides" are available.

MILITARY INFORMATION FOR PHYSICIANS

Relation of physicians to military service is receiving careful attention in *Capitol Clinics,* issued weekly by the American Medical Association Washington office.

Following are excerpts from recent issues.

NAVY ORDERED TO ASSIGN V-12 RESERVISTS TO ACTIVE DUTY WITH ARMY
ARMY TO RELEASE SOME OF WORLD WAR II RESERVES AFTER 3 TO 4 MONTHS

Two developments have drastically changed the military medical situation. The net result is that far fewer World War II reserves than anticipated will be called to active duty in the next few months, and that many of those currently on active duty or yet to be called on mandatory orders will be required to serve only three or four months, rather than twenty-one months.

The most important development came in a directive from the new Secretary of Defense, General George C. Marshall. He ordered the Navy to call up enough of its V-12 reserves to meet the immediate requirements of all three services, with the first 235 to be on duty with the Army by October 15.

Navy's total of 1,350 V-12 reservists who have not served on active duty should be ample to meet immediate demands. Most transferred V-12's will go to Army, which already has a call in for a total of 570. Air Force, with a growing medical reserve roll, probably will need few if any Navy men.

Even before Secretary Marshall announced his decision, Army had decided on an arrangement to cut down active duty terms of World War II reservists from 21 months to an average of three or four months. The plan calls for using veterans only until nonveteran replacements can be processed into uniform. Until Secretary Marshall's order, Army could plan on only two sources of nonveterans—volunteers and the doctor-draft. Now, with Navy told to supply the men, Army's plan can be implemented immediately.

From now on, an Army spokesman said, the general policy will be to return veteran reservists to civilian life as fast as possible, with the hope that their active duty tours will not exceed four months. This will apply specifically to men called without their consent, but volunteers with World War II service will also be given consideration.

Army will not be able to apply its new policy uniformly to all reserve officers. Some members from at least two groups will not benefit from the plan: 1. Certain senior officer specialists in various categories, whose professional skills make them difficult to replace. 2. Certain senior command and staff officers

whose military background makes them difficult to replace.

Navy has not indicated whether it will attempt to follow the Army's policy of reducing the service of World War II medical veterans. It already has a number of these men on duty, called up on mandatory orders before it started using its V-12 reserves. However, Navy officials have been concerned with the problem and would like to find some way of replacing veterans with nonveterans. This help from Navy will not meet all Army's requirements during the next two or three months. While waiting for the doctor-draft to produce medical officers, Army plans to call up a total of 500 reserves, mostly with World War II service. However, 350 of them can look forward to returning to their practice after three or four months, or as soon as the draft makes replacements available.

Of this new group to be called to active duty 130 already have received orders. Another group of 220, members of organized military units, will be alerted when their units are called, but generally will be allowed to remain in civilian life until the units are ready to move. The remaining 150 are specialists and senior officers with command responsibilities. This group will not come under the new "four-month" policy, but will remain on duty as long as needed.

Army is understood to be ready with a request for about 900 physicians when the doctor-draft law goes into operation. All would be from the first priority —men who received all or part of their education either as ASTP's or V-12's and have not served on active duty. It will be these men, reporting for duty probably by the first of the year, who will make possible the release of World War II reservists.

WHO IS IN THE RESERVES? SURGEONS GENERAL GIVE DEFINITIONS

Inquiries to the Washington Office of AMA indicate uncertainty on the part of some physicians as to whether they actually are in the military reserves at this time and therefore subject to call.

Because of the many laws, rules and regulations involved, only the proper military authorities can give a final answer in any particular case. The best advice this office can give is this: If the man served in the Army, and has (or thinks he might possibly have had) a reserve commission, he should contact the commander of the military district in which he resides for official determination of his status. If he served in the Navy, and is concerned about his status, he should contact the commandant of his Naval District.

At our request, the Army Surgeon General's Office and the Bureau of Naval Personnel have supplied the following information, which should be considered only for guidance, not for determination of status:

Army: "Reserve officer appointments or reappointments in force at the outbreak of World War II (or made subsequently) remain in force until six months after termination of the war or termination of the five-year appointment period, whichever is the later, unless specific action to terminate the appointment has been taken by the Department of the Army. Under current law in this instance, World War II has not been declared terminated."

Navy: "A man is still in the Naval reserves unless: 1. He has resigned his reserve commission, or 2. He has been discharged from the reserves. The mere release to inactive duty of an officer in the Naval Reserves does not sever his connection with the Navy."

Air force had no separate medical service during World War II. The Air Surgeon's office said that its situation would be covered by the Army statement.

We repeat, the proper course is for every man uncertain of his reserve status to contact his Military District commanding officer or Naval District commandant.

AMERICAN MEDICAL ASSOCIATION INTERIM SESSION

The Fourth Clinical Session of the American Medical Association, designed primarily for the general practitioner, will be held in Cleveland, December 5 to 8.

The scientific sessions and the scientific and technical exhibits will be presented in the Cleveland Municipal Auditorium. Meetings of the House of Delegates will be held in the Statler Hotel.

Outstanding clinical teachers with recognized ability as speakers will headline the scientific demonstrations. Actual cases will be presented and discussed. Diagnoses, treatment and preventive measures as they fit into daily practice will receive the greatest attention.

Each clinical session will be limited to an attendance of 100 physicians. These small groups will make it possible for the general practitioner to enter actively into the discussion and to inquire about his own cases. Leading men in each of the fields under discussion will be available to help with the problems presented.

In obstetrics, difficult cases of interest will be featured. Especially stressed will be the general subjects of breach deliveries, induction of labor, indications for cesarean section, obstetric analgesia and anesthesia, and hemorrhages.

Clinical discussions featuring actual pediatric patients have been programmed. The care of premature infants, acute diarrhea in children, rheumatic fever, preventive medical measures and psychiatric care for small children are among the topics scheduled.

Because of the unusual interest displayed last year in the section devoted to management of heart cases, there will be a similar session this year. It will include discussions on hypertension, recent advances in drug therapy, including ACTH as it applies to heart disease, acute arterial occlusion and cardiac arrhythmias.

Of special interest will be discussions on Parkinsonism, the use of the electro-encephalograph, electric shock therapy and psychotherapy.

With more cases of fluid balance appearing because of the larger number of geriatric patients, there will be discussions on fluid replacement in shock, renal repairment, dehydration and other topics.

New studies and clinical histories involving traumatic surgery will include material on reconstructive surgery, emergency analgesia and emergency surgical measures.

Taken up in detail will be the management of postoperative or inoperable cancer patients. The use of analgesics and the effects of hormone and radiologic treatment will be discussed.

A program on diabetes will include diagnosis, vascular complications, special consideration in pregnancy and surgery, and dietary problems.

There will be panel discussions and demonstrations on the diagnosis of poliomyelitis, the treatment of respiratory failure and the management of paralytic cases. There will be demonstrations of physical therapy and rehabilitation measures for poliomyelitis cases.

Papers covering practical problems in dermatology

and syphilology will be presented. Deep fungous infections and industrial, allergic and contact dermatoses will be demonstrated and discussed. Emphasis will be put on the newest developments in syphilology.

New developments and refinements of older technics will feature the discussions on anesthesiology. Spinal anesthesia, management of the surgical case, intravenous administration and other practical problems will be reviewed.

Outstanding speakers will discuss ulcers, jaundice, infectious hepatitis, cirrhosis and other gastrointestinal diseases. Newest advances in medicine and the use of many newer drugs and their application to the general practice of medicine will be presented in another section. Of special interest will be the discussions on the use of antibiotics, hormones and antispasmodics.

The scientific exhibits will include special demonstrations on fractures, diabetes, rheumatism and arthritis, cancer, pediatrics, chest diseases, surgical procedures and other subjects correlated with the clinical presentations.

Once again color television will take its place on the program. A schedule of surgery, clinical treatment and examination will be telecast from the Western Reserve School of Medicine to the auditorium. It will be sponsored by Smith, Kline & French Laboratories.

The annual General Practitioner Award, regarded as one of medicine's highest honors and a definite step toward increasing the recognition of the family doctor, will be made at the Cleveland meeting.

MEDICAL CARE PRICES VS. COST OF LIVING

The following discussion of medical care cost versus the cost of living, prepared by Frank G. Dickinson, Ph.D., Director of the Bureau of Medical Economic Research of the American Medical Association, is reprinted from *The Journal of the American Medical Association,* July 29, 1950.

"Since 1935-1939, the base period used by the Bureau of Labor Statistics of the United States Department of Labor, the index of the prices of medical care items had not risen as rapidly as the Consumers' Price Index. This trend was shown for the years 1940-1948 in previous publications of the Bureau of Medical Economic Research. Recently published data of the Bureau of Labor Statistics indicate that this relationship continued in 1949; the Consumers' Price Index was 169.1 and the index for medical care and drugs, 144.9.

"The Consumers' Price Index measures the changes since 1935-1939 in the prices of fixed quantities of goods and services normally purchased by moderate income families in large cities. Prices for approximately 190 individual items are obtained primarily in thirty-four large cities. Since two or more qualities are priced for many articles, prices for about 270 different articles and qualities are used in the index calculations to represent the movement of most of the more than 1,400 different articles and services bought by American families. Despite these limitations, the Consumers' Price Index is generally regarded as our best measure of changes in the purchasing power of the consumer's dollar; it is widely used in adjusting wages to changes in the cost of living. The relative importance of the medical care items among all the items in the Consumers' Price Index is slightly more than 3 per cent. (The fixed quantity weight given to the medical care items multiplied by the current price for these items results in a cost which is slightly more than 3 per cent of the sum of the costs of all goods and services in the Index.) Thus, the index of the price of medical care may be considered a small but significant part of the Consumers' Price Index. Its relationship to the entire Index is important in analyzing the cost of medical care.

"The accompanying table presents the Consumers' Price Index (in the top row) and the price indexes of the medical care items for 1947, 1948 and 1949. With the exception of drugs, the index for physicians' services rose least of all medical care items between 1948 and 1949. The 1949 index for physicians' fees (general practitioner, surgeon, specialist) was 137.9 (row I A of table); the index for general practitioners' fees was 137.7 and for surgeons' and specialists' fees, 138.4. Since the price of an item reflects to a large extent the demand for and supply of that item, this relatively small increase in the index for physicians' services strongly suggests that the demand for physicians' services in relation to the supply was not excessive; otherwise the index for physicians' services would probably have been much higher.

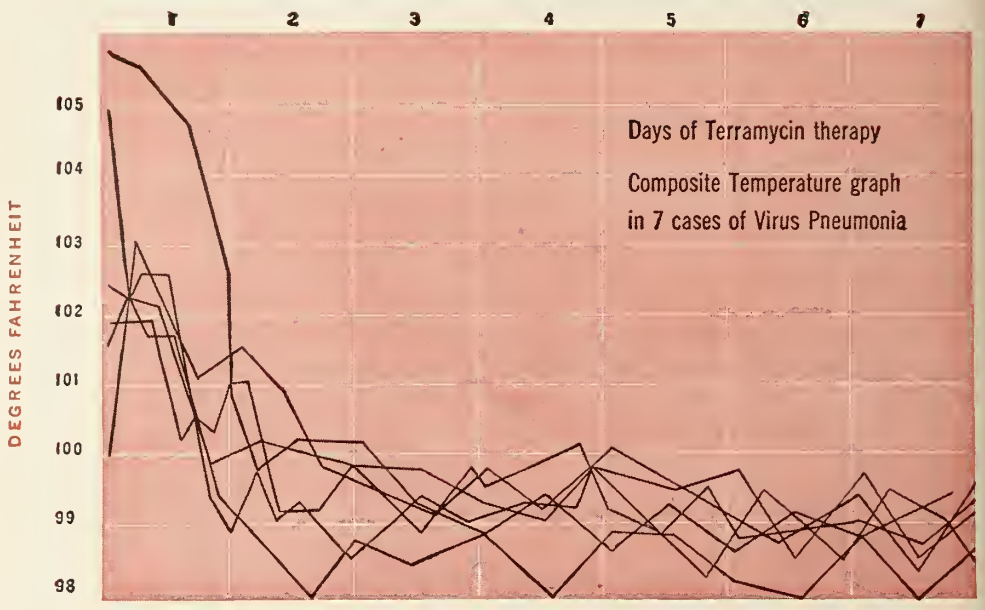
The Consumers' Price Index[1] and Price Indexes for Medical Care[2] for Moderate-Income Families in Large Cities for the Years 1947, 1948 and 1949 (1935-1939 = 100)

	1947	1948	1949
Consumers' price index (cost of living)	159.2	171.2	169.1
Medical care and drugs	131.6	140.1	144.9
I. Medical care excluding drugs	135.3	144.4	149.7
A. Physicians' fees (general practitioner, surgeon, specialist)	130.2	135.5	137.9
1. General practitioners' fees	130.3	135.2	137.7
(a) Office visit	131.5	136.9	139.0
(b) House visit	125.3	128.5	131.4
(c) Obstetric case	143.7	153.4	155.6
2. Surgeons' and specialists' fees	129.4	135.8	138.4
(a) Appendectomy, adult	128.2	133.1	134.2
(b) Tonsillectomy, child	130.7	138.7	142.8
B. Dentists' fees	137.4	144.8	150.6
1. Fillings	137.7	145.1	150.9
2. Extractions	139.0	146.8	152.9
C. Optometrists' fees, eyeglasses	118.6	123.6	127.6
D. Hospital rates	179.6	209.7	226.8
1. Men's pay ward	194.4	231.6	253.5
2. Semi-private room	175.1	204.2	221.7
3. Private room	169.7	194.7	207.7
II. Prescriptions and drugs	115.4	121.5	123.3
A. Prescriptions	123.7	133.9	137.1

"The index for hospital room rates, again the highest of all the medical price indexes was 226.8 in 1949, or 17.1 points higher than the 1948 index. If the hospital portion of the index of medical prices were excluded, the index of medical care prices in 1949 would be considerably lower than the reported level of 149.7 (item I in the table). As explained in earlier publications, the hospital, as a buyer of large quantities of goods and services—labor, food, fuel—which have undergone great increases in price, is fully subject to the forces of inflation. The higher prices of the materials and labor purchased by the hospital are reflected in the price index of the services it sells. On the other hand, the average length of stay in the hospital has decreased. In private nonprofit hospitals—the type covered in the Index—the average length of stay decreased from 12.5 days in the period 1935-1939 to 9.2 days in 1949. If the increase in the index of hospital room rates is adjusted for the

[1] Monthly Labor Review, Bureau of Labor Statistics, United States Department of Labor, 70:355 (March) 1950.
[2] Indexes of Retail Prices of Apparel, Housefurnishings and Services and Miscellaneous Goods to Moderate-Income Families in Large Cities of the United States, Quarterly reports: June 1948, March 1949 and March 1950.

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Metcher, G. W.; Gibson, C. D.; Rose, H. M., and Kneeland, Y.: J. A. M. A. 143:1303 (Aug. 12) 1950

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Melcher, G. W.; Gibson, C. D.; Rose, H. M., and Kneeland, Y.: J. A. M. A. 143:1303 (Aug. 12) 1950.

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1. *Blake, F. C.; Triou, C. J., and Wagner, R. R.; Yale J. Biol. and Med. 22:495 (July) 1950.*
2. *Herrell, W. E.; Heilman, F. R.; Wellman, W. E., and Bartholomew, L. A.: Proc. Staff Meet. Mayo Clin. 25:183 (Apr. 12) 1950.*

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decline in the average length of stay, the adjusted index—reflecting the cost for the patient's entire stay in the hospital—is approximately 167 for 1949, which compares favorably with the Consumers' Price Index of 169.1. Similar adjustments for the changing conditions in the utilization of other medical care items could be made if more data were available. In all probability, however, these adjustments would not result in changes as marked as those in the index for hospital rates.

"The price indexes for other medical care items in 1949 were considerably lower than the Consumers' Price Index. The index for medical care excluding drugs was 149.7; the index for drugs alone was 123.3. The index for dentists' fees was 150.6 and for optometrists' fees, 127.6.

"To the extent that these indexes reflect nationwide trends, in 1949 Americans were again fortunate in that the prices of medical care had not risen as rapidly as the general cost of living since 1935-1939."

SOCIETY PROCEEDINGS

FIRST COUNCILOR DISTRICT

DONALD M. DOWELL, CHILLICOTHE, COUNCILOR

At the Maryville Country Club, thirty physicians from Northwest Missouri and Southern Iowa attended a meeting of the First Councilor District on Monday, October 9. The afternoon program was presented by the St. Louis University School of Medicine through its Cardiovascular Section as follows: "Essential Hypertension," Edward P. Reh, M.D.; "Hypertensive Heart Disease," C. G. Vournas, M.D.; "Treatment of Hypertension," Max S. Franklin, M.D.

An enjoyable social hour and dinner preceded the evening session at which W. A. Bloom, M.D., Fayette, President, Missouri State Medical Association, spoke on "Medicine in Action." Mr. T. R. O'Brien, Executive Secretary of the Association, discussed a number of current items of general interest to the profession.

Captain Carroll P. Hungate, M.C., USNR, Kansas City, spoke on "Atomic Warfare and the General Practitioner."

The final item on the program was the showing of a sound film made during the 1950 meeting of the House of Delegates of the American Medical Association.

Donald M. Dowell, M.D., Councilor.

NINTH COUNCILOR DISTRICT

E. C. BOHRER, WEST PLAINS, COUNCILOR

South Central Counties Medical Society

The South Central Counties Medical Society met at the Arcade Hotel, West Plains, on August 16 for a dinner meeting. The following members and visitors were present: Drs. S. W. Connor, R. W. Denney and A. C. Ames, Mountain Grove; T. J. Burns and S. G. Kramer, Houston; D. F. Callihan, West Plains; C. W. Cooper, Thayer; A. R. Walker, Mammouth Spring, Arkansas; Glenn O. Turner and Robert D. Duncan, Springfield. The wives of several attended.

Dr. Burns, vice president, called the meeting to order following dinner.

Dr. Turner spoke on "Treatment of Congestive Heart Failure," stressing especially diet and diuresis.

Dr. Duncan spoke on "Surgical Lesions of the Chest," and showed a number of films illustrating the results of removal of malignant growths from the lungs.

COUNTY SOCIETY HONOR ROLL — 1950

(Societies which have paid dues for all members and date placed on Honor Roll)

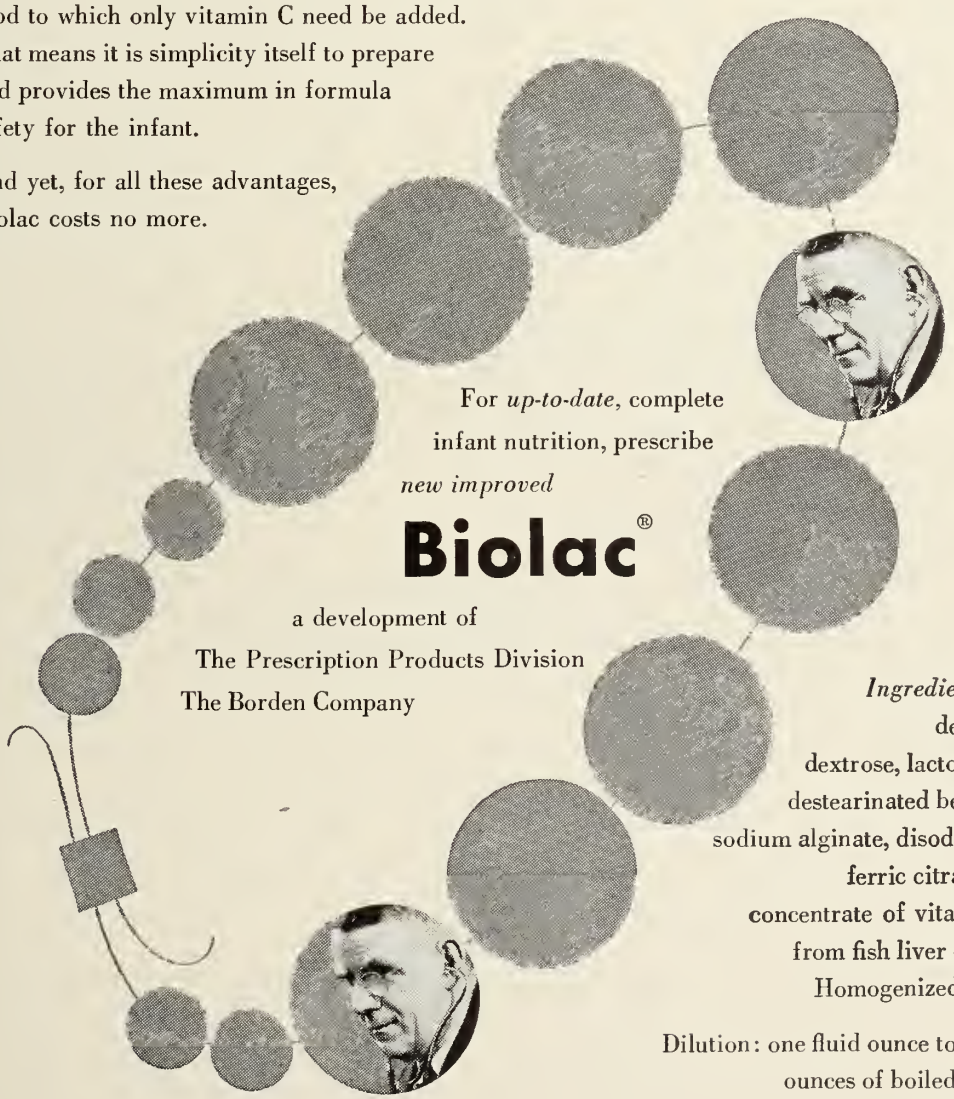
Benton County Medical Society—December 3, 1949
Camden County Medical Society—December 5, 1949
Harrison County Medical Society—December 7, 1949
Moniteau County Medical Society—December 9, 1949
Ste. Genevieve County Medical Society—December 15, 1949
Miller County Medical Society—December 16, 1949
Callaway County Medical Society—December 17, 1949
Webster County Medical Society—December 19, 1949
Perry County Medical Society—December 21, 1949
Dallas, Hickory, Polk Counties Medical Society —December 29, 1949
Audrain County Medical Society—December 30, 1949
Lewis, Clark, Scotland Counties Medical Society January 4, 1950
Howard County Medical Society—January 10, 1950
Pike County Medical Society—January 10, 1950
Linn County Medical Society—January 15, 1950
Shelby County Medical Society—January 18, 1950
Pettis County Medical Society—January 18, 1950
Henry County Medical Society—January 26, 1950
Carter-Shannon County Medical Society—January 27, 1950
Carroll County Medical Society—February 4, 1950
Morgan County Medical Society—February 8, 1950
Mineral Area County Medical Society—February 8, 1950
Laclede County Medical Society—February 9, 1950
Bates County Medical Society—February 13, 1950
Cape Girardeau County Medical Society—February 25, 1950
Vernon-Cedar County Medical Society—February 27, 1950
Johnson County Medical Society—March 3, 1950
Franklin County Medical Society—March 13, 1950
Lincoln County Medical Society—March 10, 1950
Cole County Medical Society—March 17, 1950
Marion-Ralls County Medical Society—March 24, 1950
Cass County Medical Society—March 27, 1950
Stoddard County Medical Society, May 11, 1950.
Chariton County Medical Society, May 15, 1950.
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A vote of thanks was given the speakers.

The minutes of the last meeting were read and approved and a financial report was presented. The death of A. H. Thornburgh, M.D., West Plains, was reported.

The meeting was adjourned to meet in Houston, the Houston physicians to plan the program and announce the date.

A. C. AMES, M.D., Secretary.

TENTH COUNCILOR DISTRICT

FRANK W. HALL, CAPE GIRARDEAU, COUNCILOR

Fifty physicians attended the meeting of the Tenth Councilor District at the Cape Girardeau Country Club, Thursday afternoon and evening, October 5.

The afternoon scientific session was presented by the Cardiovascular Section of the St. Louis University Medical School, as follows: "Pathologic Anatomy of Congenital Heart Disease," Vincent Moragues, M.D.; "Inoperable Congenital Heart Lesions," James G. Janney, M.D.; "Operable Congenital Heart Lesions," C. P. Lynxwiler, M.D., and "Surgical Aspects of Congenital Heart Disease," Sidney Smith, M.D.

Following a pleasant social hour and a "full-sized" dinner, W. A. Bloom, M.D., Fayette, President of the Missouri State Medical Association, spoke on "Medicine in Action," discussing briefly a number of issues of vital interest to the profession. Mr. T. R. O'Brien, Executive Secretary of the Association, explained important points relating to Procurement and Assignment of physicians and the activation of the recent physician draft law.

G. E. Thoma, M.D., St. Louis, of St. Louis University Department of Internal Medicine, spoke on "Atomic Warfare and the General Practitioner."

FRANK W. HALL, M.D., Councilor.

Mineral Area County Medical Society

The regular monthly meeting of the Mineral Area County Medical Society was held at 8:00 p. m. on September 28 at State Hospital No. 4, Farmington.

Thomas H. Burford, M.D., St. Louis, gave an interesting discussion accompanied by lantern slides on the subject "Traumatic Chest Injuries."

The Honorable A. S. J. Carnahan, M.C., was present at the meeting and following the speaker he gave a short talk which was followed by a general discussion pertaining to medical legislation.

After the general discussion, a business meeting was held.

The following members were present: Drs. Marvin Grossman, S. C. Slaughter and W. Harry Barron, Fredericktown; Ben M. Bull, Ironton; H. C. Gaebe and J. L. Foster, Desloge; Dailey Appleberry, Rivermines; Van W. Taylor and M. T. Haw, Bonne Terre; John W. Hunt, Jr., Leadwood; James Stout, E. F. Hoctor, G. L. Watkins, Sr., and S. A. Lanzafame, Farmington; C. H. Appleberry and P. L. Jones, Flat River.

PAUL L. JONES, M.D., Secretary

BOOK REVIEW

PROCTOLOGY IN GENERAL PRACTICE, by J. Peerman Nesselrod, B.S., M.S., M.Sc.(Med.), M.D., F.A.C.S., F.A.P.S., Associate in Surgery, Northwestern University Medical School; Associate Surgeon, Division of Proctology, Evanston Hospital, Evanston, Illinois; Certified by the Central Certifying Committee in Proctology (Founder's Group) of the American Board of Surgery; Commander (MC),USNR. Illustrated. W. B. Saunders Company, Philadelphia and London. 1950. Price $6.00.

This is a book that brings proctology into the doctor's office. It is written in a simple forthright manner and is easy to read. This book is certainly an aid to the practitioner in diagnosis and treatment of anorectal pathology.

The chapter on "The Anatomy of the Anus and Rectum" is written in a clear concise manner and still gives all the information presently available in this field.

The chapters dealing with fissure, fistula and abscess and hemorrhoids give a clear picture of the symptomatology, diagnosis and treatment. The occasional complicated cases are explained simply but thoroughly.

The chapter on "Clinical Proctoscopy" shows some excellent colored photographs of endoscopic views as seen through a proctoscope.

The chapter dealing with miscellaneous subjects is most interesting; comments on bowel management, enemas, enema tips, laxatives and mineral oil, suppositories and anorectal neurosis are enlightening.

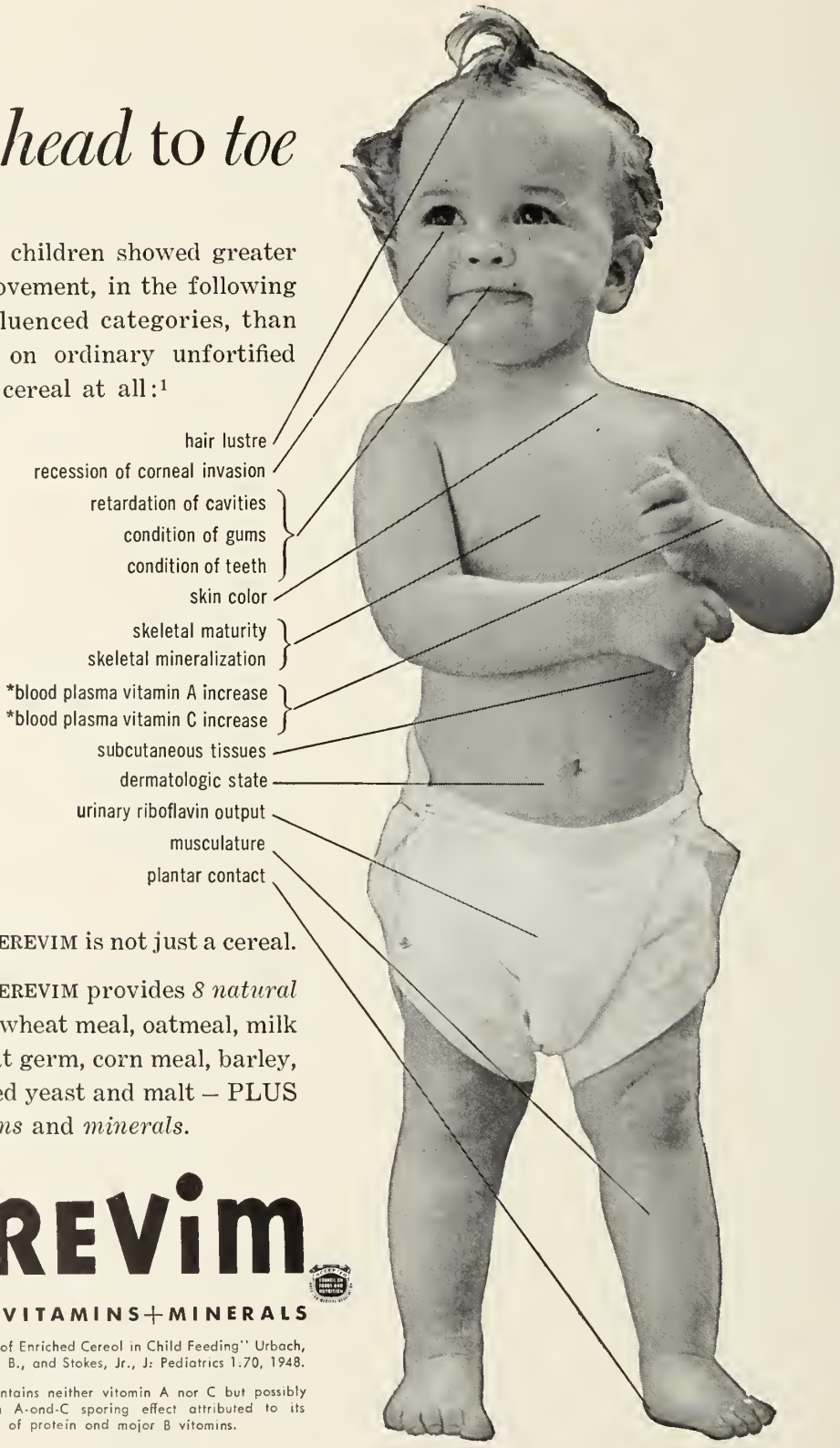
This book is a fine guide for the general practitioner and intern who finds need for information dealing with problems of the anus and rectum. S.J.F.

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1. "A Study of Enriched Cereol in Child Feeding" Urbach, C.; Mack, P. B., and Stokes, Jr., J: Pediatrics 1.70, 1948.

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Gray, L.: J. Clin. Endocrinol. 3:92 (Feb.) 1943.

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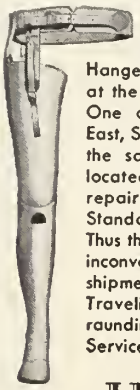
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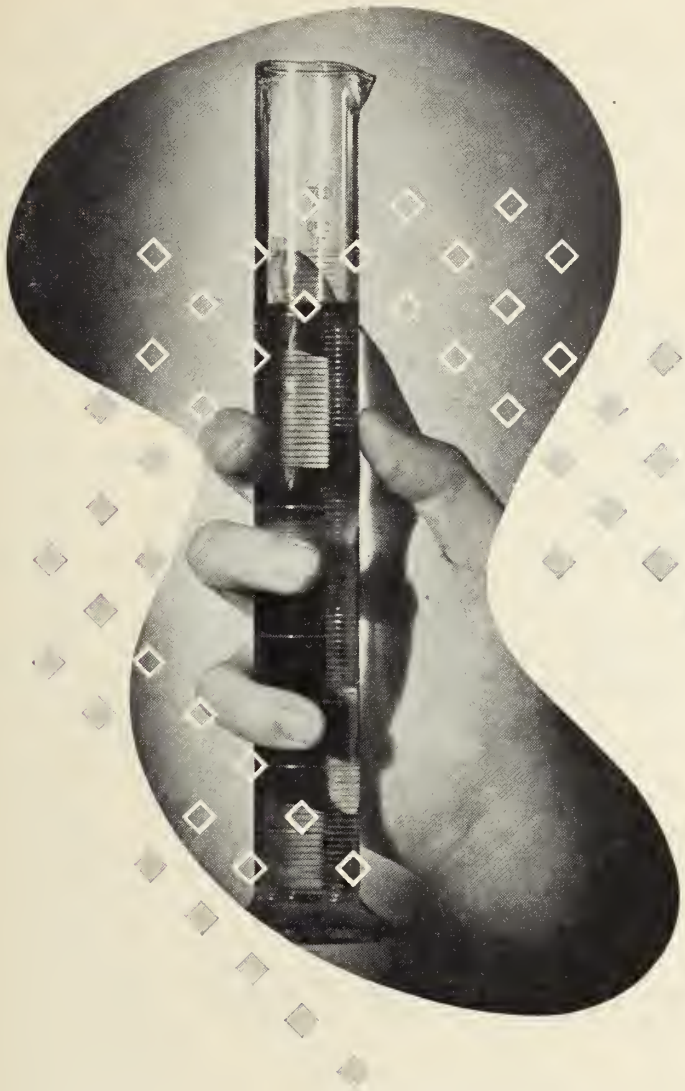
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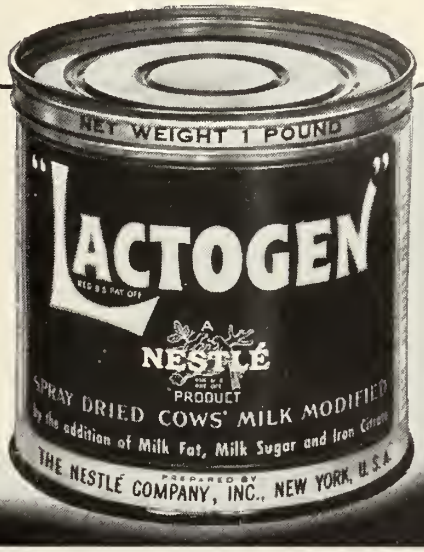
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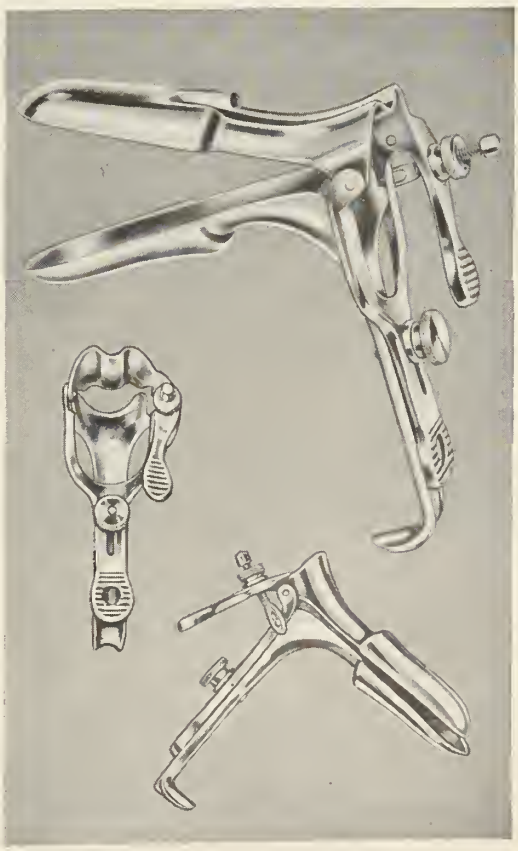
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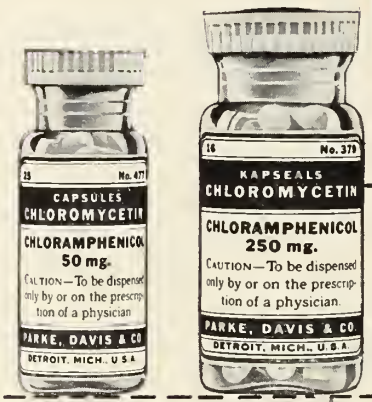
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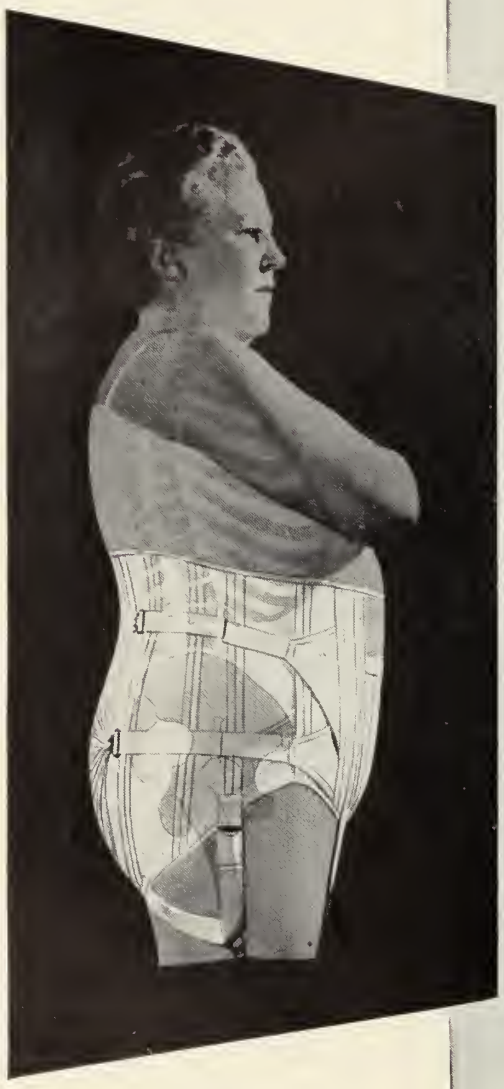
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Constitution and By-Laws—W. L. Allee, Eldon, Chairman (1952); B. Landis Elliott, Kansas City (1953); H. O. Loyd, Jefferson City (1952); J. H. Summers, Lebanon (1951); Curtis H. Lohr, St. Louis (1953).

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1. Beckman, H.: Treatment in General Practice. Philadelphia, Saunders, 5th ed., 1946, 704-705.
2. Beckman, H.: Treatment in General Practice. Philadelphia, Saunders, 6th ed., 1948, 744.

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Barton-Dade	8	Alvin R. Cain	Greenfield	Max Heilbrunn	Lockwood
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Benton	6	T. S. Reser	Cole Camp	James A. Logan	Warsaw
Boone	5	Joseph E. Allen	Columbia	James C. Cope	Columbia
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Cape Girardeau	10	Garland A. Reynolds	Cape Girardeau	John T. Crowe	Cape Girardeau
Carroll	1	J. Morris Atwood	Carrollton	John H. Platz	Carrollton
Carter-Shannon	9	Harry Rollins	Winona	W. T. Eudy	Eminence
Cass	6	David S. Long	Harrisonville	William R. Brown	Pleasant Hill
Chariton-Macon-Monroe-Randolph	2	F. A. Barnett	Paris	Henry K. Baker	Moberly
Clay	1	E. C. Robichaux	Excelsior Springs	S. R. McCracken	Excelsior Springs
Clinton	1	W. B. Spalding	Plattsburg	R. E. Wilbur	Cameron
Cole	5	Marshall Kelly	Jefferson City	J. S. Summers, Jr.	Jefferson City
Cooper	5	B. M. Stuart	Boonville	J. C. Tincher	Boonville
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De Kalb	1			W. S. Gale	Osborn
Dunklin	10	D. T. Dempsey	Kennett	E. L. Spence	Kennett
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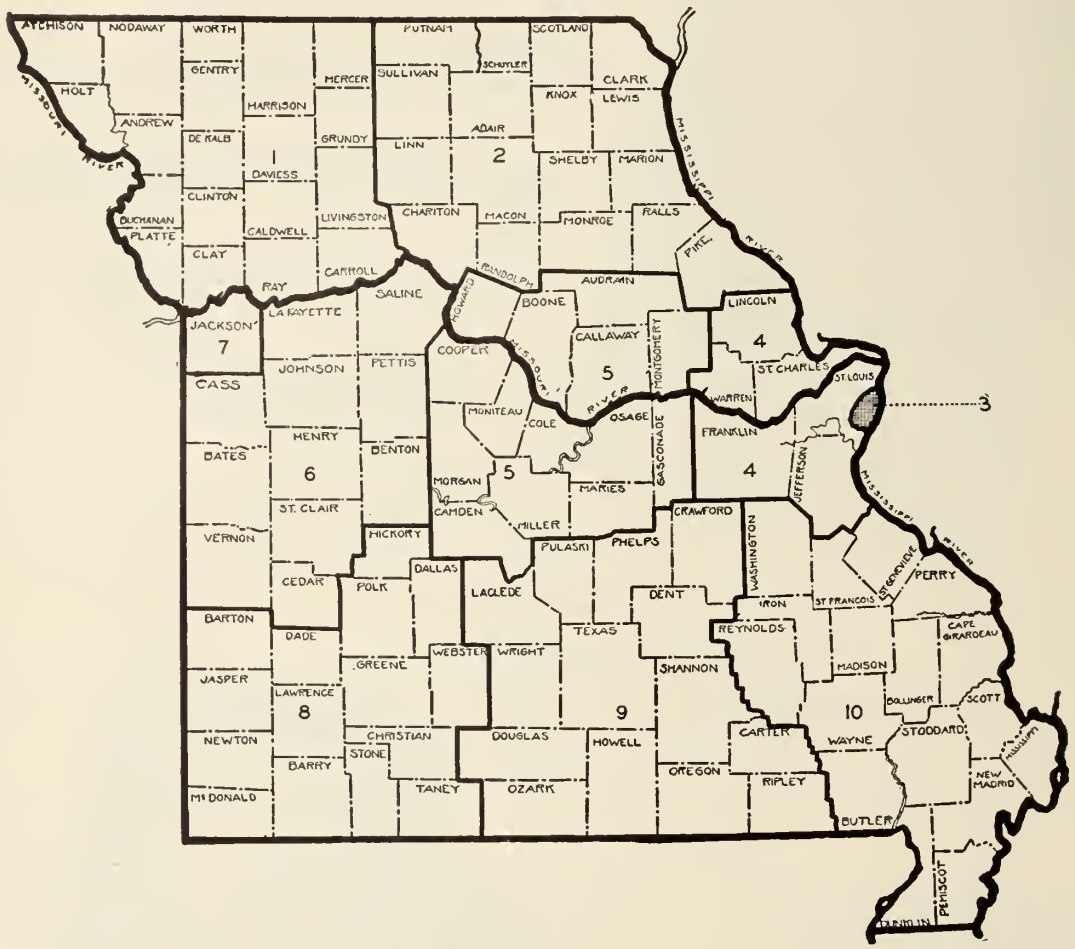
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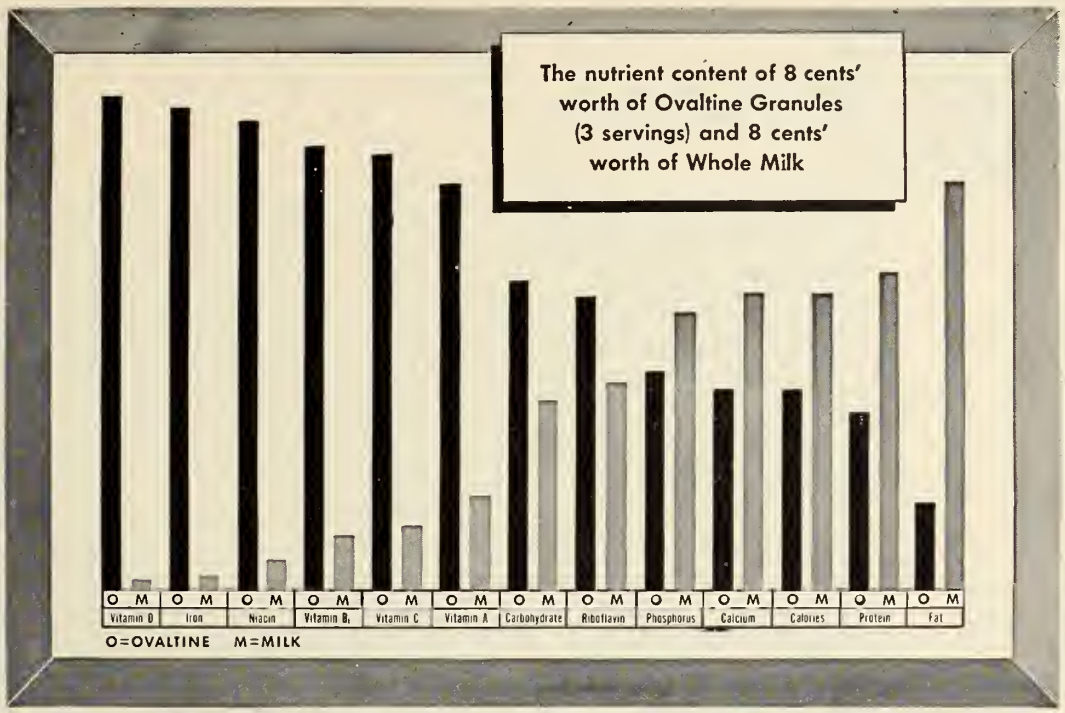
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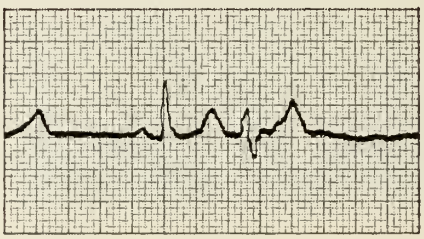
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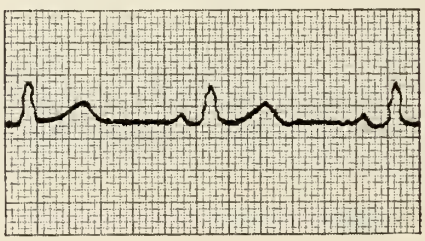
a significant advance in the treatment of ventricular arrhythmias . . . .

Effect of a single oral dose of PRONESTYL
in ventricular premature contractions

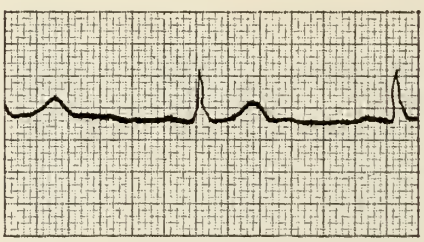
Lead II.
Control tracing:
normal sinus rhythm,
ventricular extrasystole.



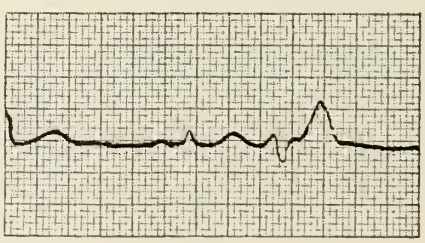
Lead II.
Tracing 30 minutes after
1 Gm. Pronestyl orally.
No ventricular premature
contractions present.



Lead II.
Tracing 7½ hours
later shows
persistent effect.



Lead II.
Tracing 24 hours later
shows return of
ventricular premature
contractions.



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IN CONSCIOUS PATIENTS

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Intravenously: 200-1000 mg. (2 to 10 cc.). *Caution*—administer no more than 200 mg. (2 cc.) per minute.

Hypotension may occur during intravenous use in conscious patients. As a precautionary measure, administer at a rate no greater than 200 mg. (2 cc.) per minute to a total of no more than 1 Gm. Electrocardiographic tracings should be made during injection so that injection may be discontinued when tachycardia is interrupted. Blood pressure recordings should be made frequently during injection. *If marked hypotension occurs, rate of injection should be slowed or stopped.*

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THE JOURNAL

OF THE

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Volume 47 December, 1950 Number 12

Scientific Articles

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ROBERT D. WOOLSEY, M.D.
ST. LOUIS
AND
GEORGE E. THOMA, M.D.
ST. LOUIS

WORKING ON the principle that certain fluorescent dyes, diiodofluorescein in particular, are absorbed and concentrated in a consistent and predictable manner in tumors of the central nervous system, Moore, Hunter and Hubbard[2] in 1949 were able to localize tumors at the operating table by means of an ultraviolet light, the tumors showing increased fluorescence as compared to the surrounding areas of normal brain tissue. With this in mind, Moore and associates synthesized diiodofluorescein employing radioactive iodine (I^{131}). This rendered the entire dye compound radioactive with physical properties that allowed its detection through the bony cranium. Radioiodine (I^{131}), being a strong gamma emitter, affords an excellent means of detecting its presence with a Geiger counter. By employing this same principle, but with refinements of technic, Davis, Martin, Ashkenazy and others[1] were able to localize correctly about 90 per cent of the tumors examined.

EQUIPMENT USED

Following is a list of the technical equipment needed to carry out this procedure (fig. 1): (1) end window Geiger-Muller tube shielded with 1 centimeter of lead; (2) counting rate meter, and (3) graphic recorder, the Esterline-Angus ammeter type.

The shielded Geiger-Muller tube is mounted on a special floating arm designed by the Dazor Manufacturing Company, St. Louis, Missouri.

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PROCEDURE

The patient is given diiodofluorescein containing 1.1 millicuries of radioactive iodine (I^{131}) intravenously. Immediately after injection the shielded Geiger tube is placed over any one of the standard positions and counting and graphic recording are begun immediately (fig. 2). This is felt to be important because time is the essence of this test.



Fig. 1. Apparatus used in localization of brain tumors.

By immediately recording the activity over a particular area, one can determine the earliest time of relative stability of diiodofluorescein concentration. Once this stability is observed, a systematic survey of the cranium is begun. Thirty-two areas are examined routinely. These consist of fourteen bilateral and six midline areas (fig. 3).

The time for each determination depends upon the length of time needed for the counting rate to become stabilized with a consequent plateau on the graphic record. The plateau should persist for at least three minutes. Since a comparison of the contralateral sides for each position is important in the interpretation of the record, it is imperative that the sites be alternated from side to side.

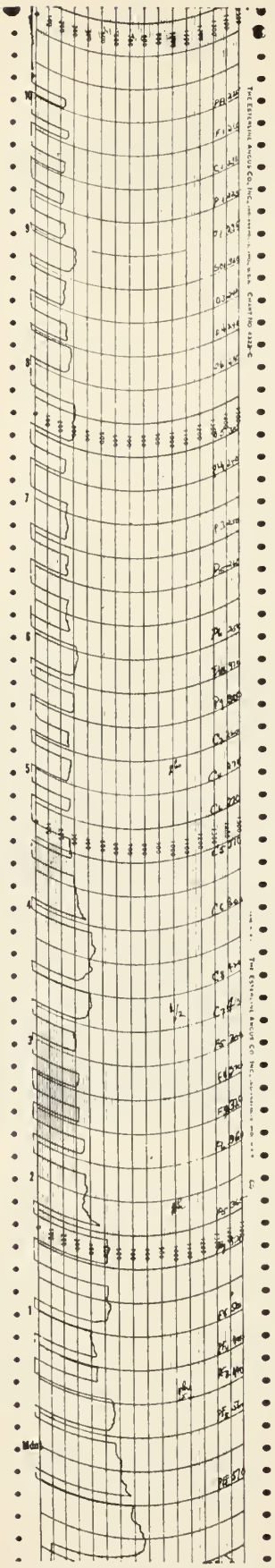


Fig. 2. A normal record.

RESULTS

An analysis of the present series of patients examined reveals a total of forty-two. Of these twenty-four had normal records and no evidence of tumor was elicited by other methods of examination such as electroencephalogram, pneumoencephalogram, ventriculogram or craniotomy. There was a total of seventeen positive records. Of these the tumor was

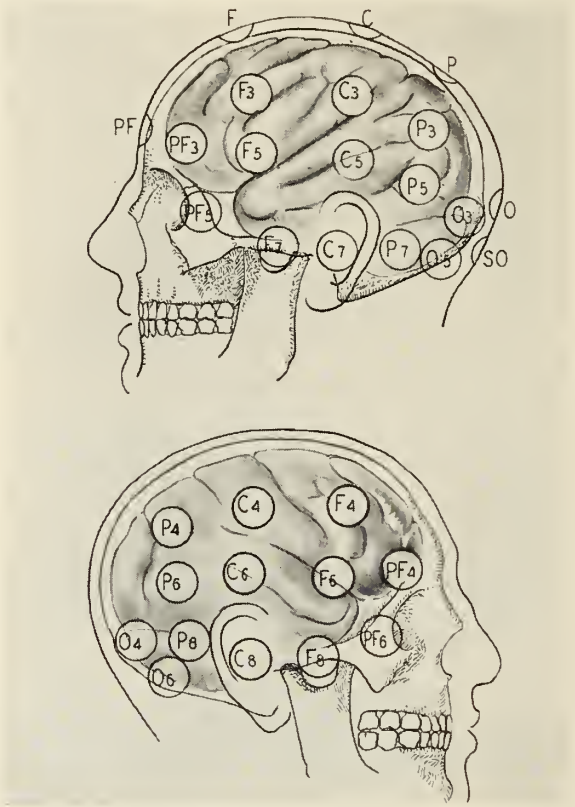


Fig. 3. The 32 standard positions: PF, prefrontal; F, frontal; C, central; P, parietal; O, occipital; SO, suboccipital.

correctly localized as proved by craniotomy or autopsy in nine cases. Six suspected tumors were localized but have not as yet been proved. In two cases there were consistently localized areas of increased radioactivity but no lesions were found at operation. In one case the tumor was not localized by this method but was found at operation.

Table 1 shows the results of the total number of patients examined. Since this is a preliminary report no effort is being made to compute the percentages of success or failure. The series is too small and the number of unconfirmed cases to date too large to allow arrival at any significant statistical results. The reader may draw his own conclusions

Table 1.

Total Number of Patients Examined	42
Normal records (no tumor demonstrated by pneumoencephalogram, ventriculogram or craniotomy	24
Correctly localized tumors	9
Tumors localized, unconfirmed to date	6
Tumors localized, not found at craniotomy	2
Tumors not localized, found at craniotomy	1
Subdural hematoma with negative record	1
Postconvulsive state, generalized abnormal record	1
Postoperative intracranial tumors with normal record	2

from the thirteen cases with operative or necropsy substantiation. Of these, nine tumors were correctly localized and the subdural hematoma was not localized. One tumor was missed and two were localized incorrectly. Results, therefore, were correct in ten of thirteen cases.

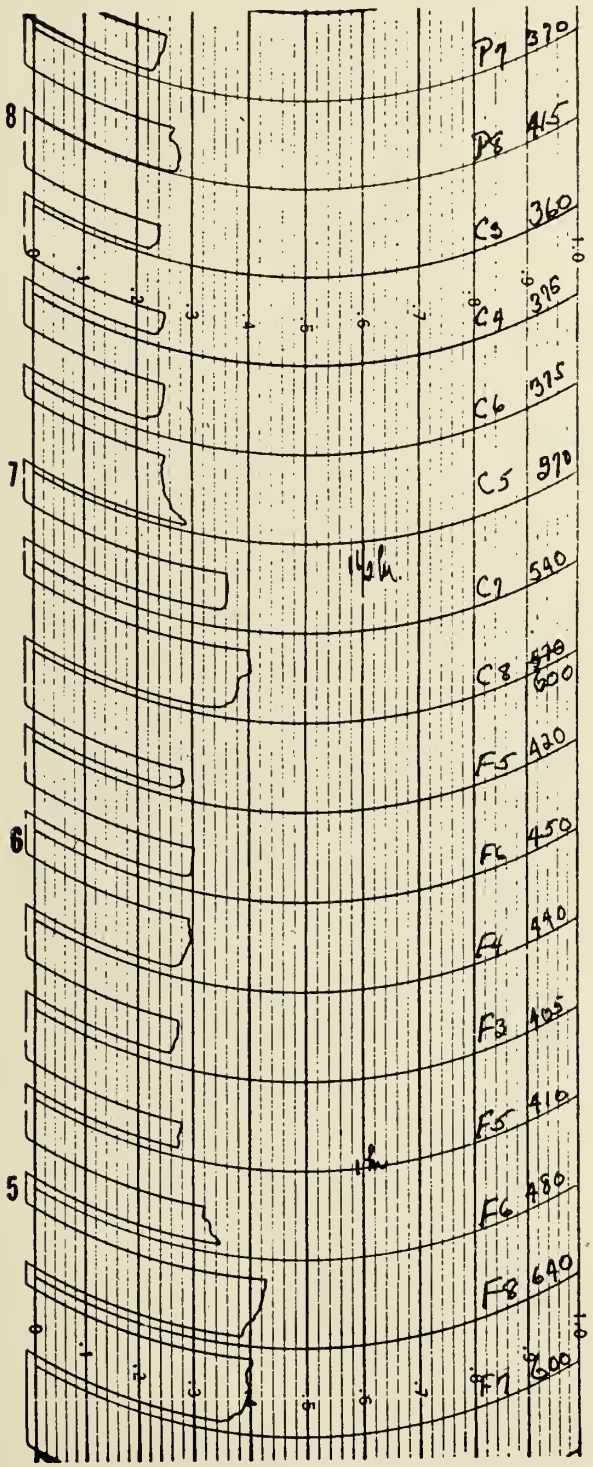


Fig. 4. Abnormal section of record from patient R. H. (case 4). Asymmetrical increase in counting rates can be noted at the F8, F6, F4, C8 and P8 positions. (Note: Large scale divisions represent counting rate of 150 per minute on this chart.)

SUMMARY OF CASES IN WHICH THERE WERE POSITIVE FINDINGS

Case 1. Mrs. M. J. (Deaconess Hospital) had a definite neoplasm of the left upper lobe of the lung with positive biopsy. She had a motor aphasia and a right-sided hemiparesis.

The record showed a high count throughout with localization primarily to the right temporal lobe. It was assumed in this case that there were multiple metastatic lesions.

Case 2. Mrs. M. A. (Deaconess Hospital) showed a uniformly high count throughout with localization to the left prefrontal area. The patient had been having Jacksonian convulsions limited largely to the right hand. At operation she showed a small cortical glioma, diagnosed as astrocytoma pathologically, which was located just anterior to the left motor area.

Case 3. Mrs. C. H. (Firmin Desloge Hospital) had papilledema with hemorrhages; air injection on three

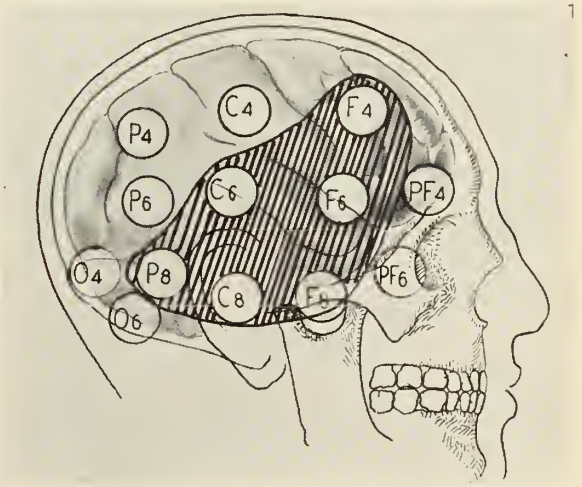


Fig. 5. Outline of the areas of increased radioactivity as determined from graphic recording (fig. 4).

different occasions was negative. This patient had the highest counts just to the left of the midline, over the occipital region. This patient was explored over the left occipital lobe with negative results.

Case 4. Mr. R. H. (St. Mary's Hospital) had a uniformly high record with greatest difference over the right frontotemporal region (figs. 4 and 5). Ventriculography showed a lesion in this area. At operation a tumor the size of a small orange along with the right frontal lobe and the tip of the temporal lobe was removed. This has subsequently been diagnosed as an astrocytoma.

Case 5. Mr. H. L. (Firmin Desloge Hospital) had a uniformly high record throughout the whole procedure. In fact, this is the highest record that was obtained in any patient. There was only one point at which there was any great increase of one side over the other, and that was at one localization on the left parietal lobe. He died on the second day after admission and autopsy revealed only a grossly edematous brain with petechiae throughout and no localized hemorrhage or tumor.

Case 6. F. M. (St. Mary's Hospital) had a uniformly high record with increase in radioactivity over the left inferior central area. This patient, a 5-year-old child, had a normal ventriculogram, bilateral sixth nerve palsy and peripheral seventh nerve palsy. Diagnosis was pontine tumor and at postmortem examination this was found to be the case.

Case 7. Mrs. A. R. (St. Mary's Hospital) had a uniformly high record throughout with localization to the left parietal and to the cerebellar areas. This patient had a questionably positive x-ray of the chest for tumor. She expired a few days after entry to the hospital and at autopsy a metastatic carcinoma from a bronchogenic carcinoma in her left parietal lobe and in the cerebellum was found.

Case 8. Mrs. J. R. (Missouri Baptist Hospital) showed a uniformly high record with bilaterally increased readings over both prefrontal, frontal and central areas. There was a marked increase over the prefrontal area in the midline. This was suggestive of a lesion about the sella turcica and at operation this was found to be a large meningioma of the tuberculum sellae.

Case 9. Mrs. I. S. (Missouri Baptist Hospital) showed only a moderately high record with focalization over the right temporal lobe. Ventriculography on this patient showed a slightly dilated ventricular system. The patient had a left hemiparesis. Exploration of the right temporal lobe gave completely negative findings.

Case 10. Mrs. A. T. (Missouri Baptist Hospital) had a uniformly high record with focalization low over the left parietal region. Clinically, she showed a right sided hemiplegia and beginning aphasia. Operation revealed a glioma about 3½ inches deep in the parietal lobe on the left side.

Case 11. M. T. (Firmin Desloge Hospital) showed a uniformly high record with focalization over the left inferior prefrontal and left central areas; in other words, over the left ear. Clinically, this patient had the findings of an eighth nerve tumor. This has not been verified by craniotomy.

Case 12. D. D. (St. Mary's Hospital) 6-year-old boy with weakness of left arm and leg for the last six months complained of blurring of vision for the last three months. Physical examination showed left hemiparesis and bilateral papilledema.

The record showed high counts over the left cerebellar area.

Operation revealed a solid tumor after incising the vermis of the cerebellum at a depth of about 3 centimeters. This tumor was in the left lateral wall of the fourth ventricle and could not be removed because of its location. A Torkildson procedure was done to short circuit the spinal fluid from the lateral ventricle to the fourth ventricle by means of a polyethylene tube.

Case 13. R. B. (St. Mary's Hospital), 27 year old male, gave a history of head injury about one year previous to admission. X-rays of the skull showed a calcified lesion at the anterior superior aspect of the lateral wall of the right orbit. The record showed an increase in activity over the F-8 position and over the position midway between F-8 and F-6.

Operation revealed an osteoma of this area which was removed.

Case 14. T. H. (U. S. Veterans Hospital, Jefferson Barracks) gave a history of a convulsive seizure with subsequent loss of power in the right arm and leg. Craniotomy was done at another hospital and a portion of a glioma involving the parietal lobe on the left was removed. Review of the ventriculogram shows the ventricles pushed well past the midline. The record shows an elevation over the deep and right temporal and parietal regions.

At operation the old tumor cavity was found to contain a large mass of necrotic material. When this was removed it was found that there were numerous large blood vessels far over toward the right side of the head, much more so than on the left. This probably can account for the increase in activity found over the right temporal region.

DISCUSSION

This procedure, though still in its infancy, we feel is going to be of increasing importance in the localization of intracranial neoplasms. It gives the operator information not only as to the location of the tumor but also about its size, depth and type. The localization naturally depends on differences in counting rates between contralateral sides, and the size can be estimated by carefully outlining on the graphs, as shown in figure 3, those areas of increased activity. This gives some estimate of the extent of the tumor. The deep seated tumors show less increase in counting rates than do the superficially located tumors.

The type of tumor can only be suggested by the variation in the height of the various records. It would seem that the more malignant tumors have the higher counting rates and, at present, we can only theorize about the reason for this. It is thought that those tumors with the greatest degree of vascularity have the highest counting rates and the tumors usually with the most vascularity seem to be the most malignant, namely, the metastatic tumors and the glioblastoma group.

Although there were no abscesses localized in this series, it has been noted by others[1] that these generally can be located accurately after a period of encapsulation has taken place where there is considerable vascularity present.

In this series reported it will be noted that one patient with a subdural hematoma and definite increased intracranial pressure was read as being negative. Because of this the diagnosis of subdural hematoma was made in the absence of any note in the history that the patient had trauma. This diagnosis was substantiated by surgical exploration.

One other patient, the postconvulsive patient, had a uniformly high record without localization except in one small area and it is believed that this is the usual thing with postconvulsive states. It is, therefore, important in patients who are having convulsions to make these records, if possible, only after a sufficient time has elapsed after the last convulsion. One patient who had a negative record with a supersellar meningioma is of considerable importance. These tumors are rather small and they are located almost at the exact center of the intracranial cavity, low on the floor. For such a tumor to be found, therefore, it would have to be of considerable size and these tumors are usually no larger than a large walnut or a handball. Thus, the size of the tumor does have something to do with the ability to localize by this method.

Two patients were examined about six months after removal of tumors and were found to have negative records. It is believed that this is important because ventriculography is notoriously inaccurate in the estimation of the convulsive states found in patients postoperatively after the removal of tu-

mors with large segments of brain tissue. We feel that this is going to be one of the most important uses for this procedure.

At the present time we feel that a negative record is as informative as a positive one because, if the record is uniformly low throughout and shows no asymmetrical areas of increased radioactivity, it is extremely unlikely that a tumor will be found.

SUMMARY

The method for the localization of intracranial neoplasms employing radioactive diiodofluorescein is described.

The results of the examination of forty-two patients are given.

Brief case histories of fourteen patients in which there were positive records are presented.

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CONTINUOUS PARAVERTEBRAL LUMBAR SYMPATHETIC BLOCK

REPORT OF SIX CASES

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CONTINUOUS LUMBAR paravertebral sympathetic block was performed on a series of six cases with injuries and diseases of the lower extremities. The purpose of the procedure was to promote vasodilation of the extremity by blocking the sympathetic nerve supply and, thereby, increasing the blood flow in the affected limb and, consequently, its nutrition. Leriche,[1] White[2] and Ochsner and DeBakey[3] previously had advocated the injection of a local anesthetic agent in order to obtain a temporary paralysis of the sympathetic nerve supply to the extremity. This method, however, produced only a transient effect and, in cases in which continuous relief or a continuous therapeutic block was desired, repeated injections had to be resorted to, even as often as every six hours being recommended.[4] The disadvantages of such a procedure both for the doctor as well as the patients are quite obvious. In order to offset these difficulties, Thomason and Moretz[5] devised a method wherein they could leave a Touhy catheter *in situ* near the sympathetic ganglia and a continuous injection of the anesthetic solution was insured without the aid of multiple punctures.

PROCEDURE

The equipment used in the six cases presented was similar to that employed by Thomason and Moretz.[5] The procedure, however, had a slight variation in that instead of using the lateral decubitus position, the sitting position with the back slightly arched forward was used. On two postoperative patients who could not sit up, the usual procedure was followed for convenience. Strict asepsis was observed in all cases. The rest of the procedure follows:

1. The spine was marked conveniently at the first or second lumbar vertebra before draping.

2. Four centimeters from this point and laterally (fig. 1) a No. 16 Tuohy needle with a Huber point

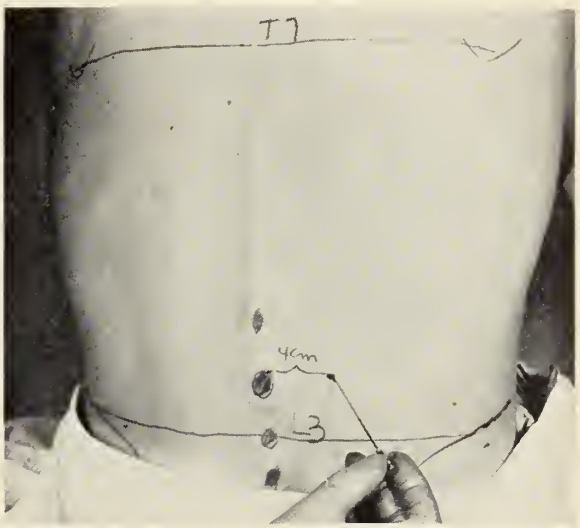


Fig. 1. At 4 cm. lateral to the spinous process of the second lumbar, wheal is raised and a 16 guage needle is inserted to the transverse process.

was inserted perpendicularly forward through the skin until it came in contact with the transverse process of the vertebra. The point of puncture had been anesthetized previously with 1 per cent procaine.

3. The needle was withdrawn as far as the subcutaneous tissues and rotated at a 45 degree angle. It was reinserted in this position, downward, forward and medially, until the tip of the needle came in contact with the body of the vertebra.

4. Carefully and slowly the needle was withdrawn again about a centimeter or less and the tip was maneuvered laterally and forward into the area in which the sympathetic chain with its ganglion is located. The operator knew that this step was accomplished successfully when the needle slipped off the body of the vertebra and no longer had bony contact.

5. Gently, the needle was withdrawn until the tip again contacted bone. This placed the tip of the needle at the anterolateral aspect of the body of the vertebra where the chain of the sympathetic nervous system is located (fig. 2). The stylet was removed in order to insert a No. 3½ Tuohy catheter. Great care was always taken to ascertain that the subarachnoidal space had not been penetrated. This was accomplished by aspiration.

6. The catheter was inserted and as soon as its tip had passed through the open end of the needle the latter was withdrawn and the catheter was left *in situ* (fig. 3). The catheter was firmly and securely taped to the patient (fig. 4) and the tip attached to a 23 gauge needle which was kept sterile

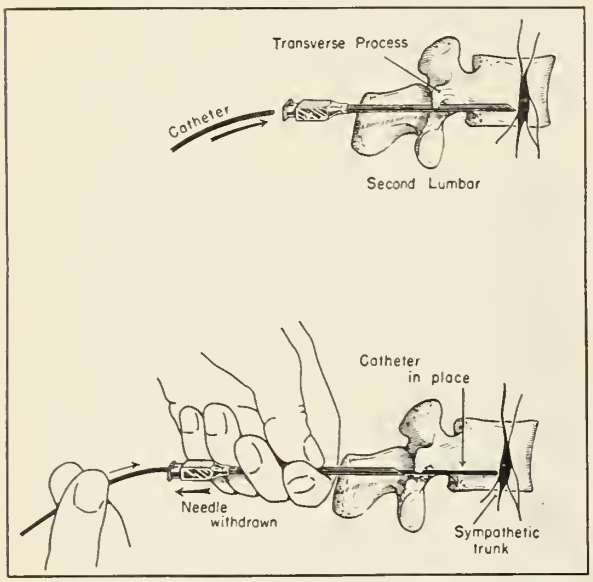


Fig. 2. Side view of the transverse process of the second lumbar vertebra. In A, the needle has passed under the transverse process and advanced to the anterolateral border of the body on the vertebra where the sympathetic chain is located. In B, the catheter is inserted through the needle a distance of from 1 to 1.5 cm. and the needle withdrawn leaving the catheter *in situ*.

in a test tube that was conveniently taped to the patient's chest.

7. The procaine and penicillin were injected at regular intervals depending on the patient's need. The regular dose was 10 cc. of a 1 per cent procaine solution with 300,000 U of aqueous penicillin.

CASE REPORTS

Case 1. A 50 year old white female was admitted to the surgical service with signs and symptoms of partial intestinal obstruction. An electrocardiogram revealed myocardial damage with premature beat of the auricle. After proper preparation, the patient was operated upon and a transverse colostomy was performed. On the twelfth postoperative day the patient developed a swollen right leg, acutely painful on motion. Homan's sign was positive. The patient was placed on dicumarol therapy. The condition of the leg, however, became progressively worse. Five days later, a lumbar paravertebral sympathetic block by catheter was performed at the right of the first lumbar. The catheter was left *in situ*. A rise in temperature of the right limb was noted after the first injection of 10 cc. of 1 per cent procaine. The injection was repeated every six hours day and night. On the second day, the swelling and pain were definitely diminished. The continuous paravertebral sympathetic block was continued for six days. On the seventh day, the swelling, edema and pain had subsided completely. Prior to the withdrawal of the catheter, 50,000 units of aqueous penicillin were injected with the procaine solution. No complications were noted.

Case 2. A 51 year old white female was admitted to the medical service with right upper quadrant pain and epigastric distress. A diagnosis of cholecystitis with cholelithiasis was made and operation was advised. On the sixth postoperative day, the patient had a temperature of 101 F., excruciating pain over the femoral and saphenous areas and a positive Homan sign. Diagnosis of acute thrombophlebitis was given and the anesthesiologists were called in for consultation. A continuous paravertebral lumbar sympathetic block was done at the first lumbar. There was a rise of temperature of the right foot after the first injection. On the fourth day the patient could move the leg without any pain. On the seventh day she was completely recovered. Homan's sign was negative. The injection of 1 per cent procaine was given every five hours day and night and the amount was 10 cc. per injection. No penicillin was given. There were no complications.

Case 3. A 66 year old white female was admitted to the medical service as a known cardiac patient of eight years duration. The patient was in a state of cardiac failure on admission. On the fourth hospital day she complained of pain in the right leg with weakness and immobility. Physical examination showed an absence of the pulsation of the dorsalis pedis of the right side. It was present on the left side. There was



Fig. 3. Needle being withdrawn and catheter left in place as it appears on the surface of the skin.

auricular fibrillation and moist rales at both bases. Twenty-four hours later the anesthesiologists were called in for consultation. A continuous lumbar paravertebral sympathetic block was instituted immediately. The rise in temperature of the extremely cold legs was dramatic after the first injection. After the

Table 1.

Case	Age	Diagnosis	Duration of the Disease	No. of Days of Block	No. of Injections Given	Total Procaine 1 Per Cent	Penicillin Total U.
1. S. D.	50	Acute thrombophlebitis. Postoperative colostomy	5 days	6	24	240 cc.	50,000
2. G. J.	51	Acute thrombophlebitis. Postoperative cholecystectomy	1 day	6	30	300 cc.	None
3. M. B.	66	Arterial embolism	2 days	3	10	80 cc.	None
4. M. F.	75	Varicose ulcers	2 years	2	8	80 cc.	500,000
5. J. H.	45	Diabetic gangrene. Arteriosclerosis	3 years	18	47	470 cc.	1,850,000
6. H. S.	31	Phantom limb. Postoperative to traumatic amputation	10 days	13	35	350 cc.	1,750,000

fourth injection, the patient could move her legs and the pain was completely gone. A total of ten injections were given every four hours. The amount was 8 cc. of a 2 per cent procaine solution. No penicillin was given.

Case 4. A 75 year old female was admitted to the anesthesiology service for a continuous lumbar paravertebral sympathetic block. She was suffering from varicose veins of both legs of forty years duration. In the last two years, however, she had developed varicose ulcers on the right leg which were recurrent and resistant to treatment. The block was started upon admission. On the fifth injection, however, the procaine solution could not be forced through the catheter. The site of puncture was moderately tender. The catheter was withdrawn and reinserted at the second lumbar. Forty-eight hours after the institution of the first block the patient developed a temperature of 103 F., accompanied by swelling at the lumbar region with all the signs of an inflammation at the site of the first puncture. The block was discontinued and the patient was placed on penicillin therapy of 300,000 U. twice a day. A total of eight injections were given through the catheter at six hours interval, and 10 cc. of a 1 per cent solution was given per injection. No penicillin was given with the procaine except prior to the withdrawal of the catheter when 500,000 U of penicillin was injected. A surgical consultation was called and a diagnosis of an abscess of the lumbar region was advanced. Incision with drainage was performed. Six days later the temperature of the patient was normal. The pain and swelling at the back had subsided.

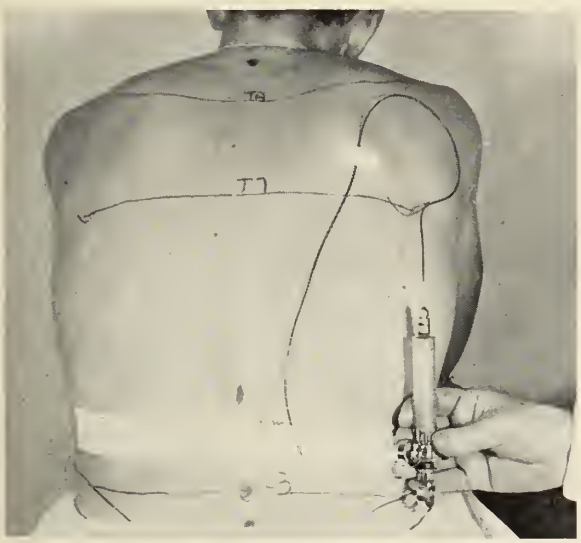


Fig. 4. Catheter strapped in place and ready for serial injections.

It was noted that the ulcer of the leg had become cleaner and granulation tissues were forming nicely. The block, however, was discontinued until a complete healing of the complication was effected.

In connection with this case, it is noteworthy to mention that the patient was obese and a slight difficulty was encountered in performing the block. There was a moderate amount of bleeding at one time and there was no question whatsoever but that the abscess resulted from the infected hematoma.

Case 5. A 45 year old white male was admitted to the orthopedic service with ulcerations of the left foot at the metatarsal area. The right foot was beginning to show signs of trophic disturbances. The patient was diabetic and was receiving 10 U of insulin daily. The condition was of three years duration. A continuous paravertebral block was performed at the first lumbar on the right side in an effort to save that limb from ulcerations similar to those of the left. The injections were performed every four hours and ten injections of 10 cc. of 1 per cent solution of procaine were given over a period of four days. Penicillin was injected with the procaine and a total of 330,000 U was given. The patient never complained of pain in the leg so this symptom could not be taken as a guide for the success of the block. Subjectively, the patient felt better. The block was discontinued after the catheter was displaced for the third time. There was a slight discharge from the site of puncture and the block was resumed only when this was healed. This time the catheter was in place for fourteen consecutive days. It was replaced thrice because it was blocked but the regularity and continuity of the injections were unchanged. The patient received thirty-seven injections at six hour intervals and 10 cc. procaine was injected with 50,000 U of penicillin each time. Subjectively, the treatment did a great deal for the patient but there was no clinical evidence of improvement. There was no question but that an increase of blood supply to the extremity was accomplished. Nonetheless, it was also quite evident that a further surgical intervention would be necessary if a more satisfactory result was expected.

Case 6. A 31 year old white male had a traumatic amputation of the left leg at the lower third of the thigh. Six weeks after the amputation, the patient

developed a phantom limb. He had severe cramping pains in the amputated foot which were continuous. Ten days after the onset of the pain, a lumbar sympathetic block was performed by the old method of direct approach to the ganglia with four needles. The patient was sensitive to pain and there was some difficulty in carrying out the procedure. Block was performed at the first, second, third and fourth lumbar vertebra without any relief of the pain. It was decided to try the continuous method. The catheter was *in situ* for thirteen days. It had to be replaced three times because of a slight discharge at the previous site of puncture. The patient received a total of thirty-five injections at six hour intervals and later on at four hour intervals. The amount was 10 cc. of a 1 per cent procaine solution with 50,000 U of penicillin. The patient had great relief of pain. He claimed that whereas the pain had been continuous and severe formerly, the institution of the block had diminished the intensity of the pain and also cut down on its frequency. It was noted at the time of the treatment that the block was effected at three hour periods as was evidenced by the relief of pain over that period of time. The block was discontinued on the thirteenth day. There was no evidence of complications except for a slight induration at the site of the puncture. It is believed that a lumbar sympathetectomy should be contemplated in this case.

Tables 1 and 2 summarize the results in the six cases that are being presented.

Table 2.

Case	Results of the Block	Complications	Other Therapy
1.	Rise of temperature of the affected limb. Diminished swelling and edema. Complete recovery of motion.	None	Dicumarol 700 mg.
2.	Rise of temperature of the extremity. Relief of pain and return of motion. Complete recovery.	None	None
3.	Rise of temperature. Return of motion and absence of pain.	None	None
4.	Clearing up of the ulcers. Rise in temperature of the extremity.	Infected hetoma at the site of puncture	None
5.	Rise of temperature of the affected limb. (Results were doubtful.)	None	None
6.	Greatly diminished intensity and frequency of pain.	None	None

The difficulty of maintaining the catheter at the proper place for a long period of time was the only obstacle encountered in the procedure. The results are, however, encouraging and, therefore, merit further trials.

SUMMARY

A modified procedure for a continuous paravertebral lumbar sympathetic block for injuries and diseases of the lower extremities is presented. Six cases are cited. Three cases gave satisfactory results without resorting to lumbar sympathetectomy; two are fairly satisfactory, and one was fairly satisfactory but had to be terminated because of complications.

St. Catherine Hospital.

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OIL SOLUBLE ANESTHETICS—A REVIEW AND A REPORT ON A STUDY FOR THEIR IMPROVEMENT

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Since 1928, several preparations containing mixtures of different anesthetic agents dissolved in various oils have been used by injection to produce a prolonged anesthetic effect in operative areas. Most of the work with these agents was done in the course of attempting to relieve pain following anal surgery. From the outset, these preparations had definite undesirable features that later investigators strove to overcome.

In 1934 and 1935 Gorsch[1] and Morgan[2] found the earlier compositions uncertain in their action, often giving rise to pain on injection or to pain several hours thereafter, and were somewhat difficult to handle in that, on injection, pooling of the oil favored induration and abscess formation. To avoid pooling, it was suggested that the oil be distributed evenly, the injection being made as the needle was advanced and the tissues massaged well after the injection was completed. In spite of careful attention to all details of technic, my experience with the use of these agents following anal surgery remained unsatisfactory. With the use of adequate amounts of oil, induration and local abscess occurred too frequently. With the use of smaller volumes, the anesthetic effect was inadequate and uncertain.

Lundy[3] stated, "Unfortunately most of the oil media have been prone to cause sloughing of superficial tissues although many of them have been found useful for intramuscular injection." Kelly[4] claimed that the oil soluble local anesthetics did not produce prolonged anesthesia, the analgesia secured by subcutaneous injection lasting only three hours. A study was undertaken, therefore, to determine the reasons for the shortcomings of the known preparations and to correct or improve them if possible.

I. REVIEW OF LITERATURE ON COMPOSITION

A. Evolution of the Compositions

In 1936, Wilson[5] reviewed and compared several basic oil soluble anesthetic mixtures that had been used up to that time. His table is included in this report, enlarged and modified, for a comparison of the compositions (table 1). To bring the comparison

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up to date, the present day formula of Anucaine[6] has been added. One will note that Anucaine now contains 1 per cent procaine base instead of the original ⅛ per cent, 4 per cent butyl p-aminobenzoate instead of 1 per cent, and no ethyl p-aminobenzoate; thereby making it more like Morgan's formula.

Anucaine and Morgan's formula are two of the most commonly used oil soluble anesthetics today. Since Nupercaine in oil contains 10 per cent benzyl alcohol it was eliminated from detailed consideration. This decision will be understood better after the discussion of action of benzyl alcohol. The formulae of Eucupin in oil and the anesthetic emulsions have been added to complete the table. Exclusive of the last two preparations, the essential changes in the evolution were removal of the irritating substances such as ether, the use of butyl instead of ethyl p-aminobenzoate, and the inclusion of adequate amounts of procaine base. Thereby, the pain produced by injection and the uncertainty of the anesthetic effect seemed to be eliminated. The Eucupin mixture partook of none of these changes, being different only in the use of Eucupin base. The emulsion anesthetics will be considered later in detail.

B. The Nature and the Action of the Drugs

1. Butyl and ethyl p-aminobenzoate are esters of p-aminobenzoic acid. They are relatively insoluble in water, the ethyl ester being more soluble in water and less soluble in oil than the butyl ester, and also less toxic and less effective an anesthetic.[7] Butyl p-aminobenzoate, therefore, should be more desirable in oil than ethyl p-aminobenzoate, but theoretical considerations have not proven to have practical value. Neither drug when injected in an oil vehicle seems to have adequate anesthetic effect[8] and they are probably irritating.[9] In the present study they were eliminated without loss of desired effect.

2. Procaine base is diethyl amino ethyl p-aminobenzoate. It is oil soluble and water insoluble.

Experimentally, Duncan[8] showed that a temporary nerve block could be produced by anesthetics in oil and that this was particularly noticeable when a procaine mixture was used. It always produced complete block.

Clinically, Morgan[2] claimed that the addition of adequate amounts of procaine base (1.5 per cent) eliminated pain with injection and the afterpains that sometimes developed several hours after the injection of earlier preparations and removed much of the uncertainty of action that characterized them.

Earlier, Gorsch[1] improved the original oil soluble anesthetic, Benacol, and introduced Anucaine. Pharmacologically, these preparations were little different except for the addition of ⅛ per cent procaine base in the latter. Gorsch believed that "more profound and prolonged anesthesia was produced" but he did mention stinging and burning on injection and delayed pain in a few cases. Still later, Anucaine was increased in procaine base content to 1.0 per cent. Both experimentally and clinically the inclusion of procaine base seemed advantageous.

3. Oil as a Vehicle was used originally because of the water insolubility of the drugs and because it was thought that the slow rate of absorption of the oil and the slow rate of diffusion from it of the dissolved anesthetic substances produced prolonged anesthesia and muscular relaxation. Oil has always been difficult to contend with. Duncan[8] felt that the oil itself constituted somewhat of a barrier to an extended use of the oil soluble anesthetics. He stated, "Perhaps at best the oil can be regarded only as a necessary source of annoyance because of its slow absorption and the danger of improper injection."

The injection of from 5 to 15 ml. of oil anesthetics into the perianal tissues and the anal sphincter has long caused me concern. First, it seemed like a considerable volume to inject in view of its slow absorption and its irritative qualities. Brown[10] showed that oils, when injected intramuscularly, caused inflammatory reactions and cyst formation varying from mild, with thin walled cysts and mild leukocytic infiltration, to marked, with fibrinous thick walled cysts, edema, heavy leukocytic infiltration and muscle necrosis. Sesame oil caused the mild reaction and peanut oil the severe type. Secondly, it seemed, in spite of the suggested technic, that the oil must "pool" on injection; that with different operators or the same individual at different times, for a given volume of oil injected in whatever manner, the only variants possible were the size of the pools and their number. Pooling could be avoided relatively only.

4. Benzyl alcohol was contained in all mixtures shown in table 1. Two reports on this agent are particularly worth reviewing. Macht[11] introduced this anesthetic agent in 1918. In his report he considered the problem of "duration of the anesthetic" and stated that for practical purposes the duration of the anesthetic effect could be learned best from a study of clinical cases. With use of weak aqueous solutions (1 to 3 per cent) it was found that anesthesia was "practically in all cases of sufficient duration for the completion of the operation." Thirty-three operations were reported varying in character from an incision of an abscess and removal of an epithelioma of the lip to an extensive plastic procedure. These facts are given to point out that no statement is made by Macht regarding a prolonged anesthetic effect when using water solutions of benzyl alcohol.

Duncan[8] studied the effects of three oil soluble anesthetic mixtures containing benzyl alcohol and of their individual components when applied to the peripheral motor branches of the facial nerve in the cat. Because of the importance of this work, a detailed résumé of his report is presented. The three mixtures he studied were Nupercaine in oil, Morgan's P.B.B., and Eucupin mixture (formulae as in table 1).

The study disclosed that: (a) The nupercaine

mixture caused prolonged paralysis and degeneration of all or nearly all of the nerve fibers in the injected area. The same results were obtained with simply 10 per cent benzyl alcohol in oil. The other ingredients, separately or together, were without effect, anesthetic or degenerative. (b) The eucupin mixture seldom caused more than transient weakness of muscles but always caused degeneration of a considerable number of nerve fibers. Practically identical results were obtained with simply 5 per cent benzyl alcohol in oil, and neither eucupin base 0.2 per cent nor ethyl p-amino benzoate 3 per cent produced much anesthetic effect or caused any degree of nerve degeneration. (c) Morgan's P. B. B. produced a nerve block of several hours' duration. In one case it lasted three days. Extensive degeneration of nerve fibers similar to that caused by 5 per cent benzyl alcohol in oil resulted from each injection.

Duncan concluded, "the prolonged effects of the anesthetic mixtures in oil were caused almost entirely by the benzyl alcohol content, and this substance in 10 per cent concentration will destroy all of the fibers in small nerves and a considerable number of them when used in 5 per cent concentration." He also stated that "because of the unquestionable functional block produced by the procaine mixture (P. B. B.) and less certain occasional results from the other substances, it cannot be concluded that the entire effect of oil anesthetics is the result of destruction of nerve fibers." Furthermore, his study showed that after a single injection or after repeated injections, nerve regeneration set in immediately and in time was complete, or nearly so, in every case. Finally, he stated, "The fact that the prolonged effects of local anesthetics in oil are accompanied by and in all probability are largely the result of degeneration of nerve fibers is not regarded as a contraindication to their use. On the contrary, the demonstration of prompt and complete regeneration invites further experimentation with temporary denervation by chemical means as a method to relieve pain and to produce muscular relaxation."

In summary, the available literature suggested: (a) that the oil soluble anesthetics produced prolonged anesthesia by chemical denervation, (b) that benzyl alcohol was the only drug in these preparations that was capable of destroying nerves, and it was the only drug common to all of them, (c) that the nerves always regenerated, (d) the experimental and clinical proof of the advantages of procaine base, (e) the relative uselessness of the other drugs, (f) the inherent irritative qualities of the oil itself, (g) the danger of producing induration and abscess formation by pooling of these anesthetic oil mixtures.

Table 1. *Preparations*

Preparation	Date Introduced	Vehicle	Benzyl Alcohol	Procaine Base	Butyl p-amino-benzoate	Ethyl p-amino-benzoate	Nupercaine Base	Phenol	Eucupin	Ether	Water
			Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent
Benacol (Yoemans-Gorsch)	1928	Oil, Sweet Almond	5	0	0	5	0	0	0	0	0
A. B. A. (Gabriel)	1929	Oil, Sweet Almond	5	0	0	3	0	0	0	10	0
Nupercaine in Oil (Gabriel)	1930	Oil, Sweet Almond	10	0	0	0	0.5	1	0	0	0
Anucaine (Gorsch)	1934	Oil, Sweet Almond	5	⅛	1	5	0	0	0	0	0
Anucaine (New Form	1946 ?	Oil, Sweet Almond	5	1	4	0	0	0	0	0	0
P. B. B. (Morgan)	1935	Oil, Sweet Almond	5	1.5	6	0	0	0	0	0	0
Eucupin in Oil	?	Oil	5	0	0	3	0	0	0.1	0	0
Emulsion Anesth. No. 1	1946	Sesame Oil 25%	4	1	5	0	0	0	0	0	70-75
Emulsion Anesth. No. 2	1948	Sesame Oil 25%	5	1.25	0	0	0	0	0	0	70-75
Emulsion Anesth. No. 3	1949	Sesame Oil 25%	5	0	0	0	0	0	0	0	70-75

II. A STUDY OF TISSUE REACTIONS TO THE OIL SOLUBLE ANESTHETICS

The review suggested that injected oil was potentially irritating in itself and that pooling favored induration and abscess formation. Since it was concluded that pooling could be avoided only relatively, the answer to the problem seemed to be to use little or no oil. Total elimination of the oil and use of a suspension of the drugs in water proved unsuccessful because the drugs clumped and no uniformity of dosage was possible. Since oil was necessary to dissolve the water insoluble elements, emulsions were tried as vehicles. It was considered that on injection stable emulsions would diffuse readily through the tissues and, following absorption of the water, the oil particles with the dissolved active drugs would be uniformly deposited through the tissues and pooling would really be avoided; thereby less oil would be used and it would be in a state of microscopic sized globules well spread out and in a con-

dition that favored its more rapid absorption and disappearance.

Preliminary studies were made to determine optimal percentages of the anesthetic drugs to be used. Varying percentages of oil were tried. The drugs were dissolved in the oil, sterilized and stored in sterile vials. Just before use, water was added. Emulsification was accomplished thereafter by shaking and then forcing the mixture through a 22 gauge needle several times, using a syringe to aspirate and then forceably reinjecting the mixture into the vial. A good and sufficiently stable emulsion could be produced showing no separation on standing for at least from forty to sixty minutes. Reemulsification, if necessary, could be accomplished by shaking and repeating this procedure. The name "emulthesin" suggested itself for this anesthetic emulsion.

In this part of the report the anesthetic effects were not considered. First, the tissue reactions to different preparations were studied in the rabbit, rat and man.

A. Laboratory Study:

1. Reaction in Rabbit.—Preparations were injected into the sacrospinalis muscles and subcutaneously. One ml. was given intramuscularly and ½ ml. subcutaneously as aseptically as possible. The injections were given as the needle was advanced and the areas then massaged for about thirty seconds. Both sides of each rabbit were used, but different preparations were injected into either side of the same animal. Animals were sacrificed at varying time intervals by air embolus. The injected areas were exposed and specimens of tissue fixed in 10 per cent formalin. Sections were prepared and stained with hematoxylin and eosin. The results are recorded in table 2.

Table 2. *Reaction in Rabbits*

Preparations	No. of Rabbits	No. of Exams. 24 H.	No. of Exams. 72 H.	Gross Reactions Muscle	Gross Reactions Subcut. Tissue	Microscopic Reactions
1. Benzyl Alcohol 5% in Sesame Oil	5	-	5	Moderate Necrosis in 4	Slight oedema and ecchymoses negligible	Encysted oil-marked cellular infiltration mononuclear cells few polymorphonuclear. Muscle degeneration to patchy necrosis. One case showed no necrosis.
2. Benzyl Alcohol 4% in water (highest possible conc.)	3	- 1	2	Moderate Necrosis in 3	Slight oedema and hemorrhage	Muscle degeneration to patchy necrosis. Same cellular reaction as above except no oil cysts. Greater % polys in 24 hrs. Patchy necrosis.
3. Benzyl Alcohol 4% in Saline	2	-	2	Necrosis in 2	Same as above	Same as above
4. Morgan's P.B.B.	2	-	2	Moderate Necrosis in 2	Slight oedema	Oil cysts present, marked degeneration and necrosis of muscle. Marked infiltration with monocytes and polys.
5. Eucupin in Oil	2	-	2	Severe necrosis in 2	Moderate oedema	Same.
6. Anucaine	3	1	- 2	Moderate Necrosis Moderate Necrosis	Slight oedema Slight ecchymoses -negligible	Oil cysts after 1st 24 hours. Moderate mononuclear reaction. Necrosis of muscle and degeneration.
7. Plain Oil Sesame	2	-	2	Slight oedema	Negligible	Moderate monocytic inflammation. Few polys, some degeneration of muscle but no necrosis. Oil cysts present.
8. Emulthesin No. 3 Benzyl al. 5% Oil 25% Penicillin G 10,000 units per 1 ml.	3	-	3	Moderate Necrosis	Slight oedema Negligible	Same cellular reaction. Necrosis along straight line like needle tract. No oil cysts.
9. Emulthesin No. 2 Benzyl al. 5% Oil 25% Pro. Base 1.25% Penicillin G 10,000 U. per 1 ml.	8	1	7	Moderate Necrosis	Slight oedema. Occasional ecchymoses-negligible	Mononuclear cells. Few polys. Muscle degeneration with patchy necrosis. Oil cysts present.
10. Oil and Water	2	-	2	Slight Oedema Necrosis in 1	Slight oedema	Mononuclear cells. Oil cysts. Showed moderate muscle degeneration. 1 showed moderate muscle necrosis (localized).
11. Dest. Water and 10,000 units of penicillin G. per 1 ml.	2	-	2	No evident reaction	Negligible	Normal.

It was found that all preparations containing benzyl alcohol in 4 to 5 per cent concentration, with or without other drugs, in water, oil or emulsion vehicles were capable of producing muscle necrosis in the rabbit. Subcutaneously, all reactions were negligible.

2. Progress of Reaction over Several Days in Rabbit and Rat.—For the rabbit, the same procedure was used. For the rat 0.6 ml. of solution was injected into the posterior lateral thigh muscles and followed by moderate massage of the injected areas. Three animals were used for each preparation and one of each sacrificed in twenty-four hours, three to four days, and ten to twelve days. The results are shown in table 3. Although only three rabbits were used for each preparation in this study, it will be

noted in table 2 that this procedure was done many times before and the reactions were the same always.

The progression seemed to be a fairly acute inflammation in the first twenty-four hours, with rabbits showing severe reaction and necrosis to the two preparations. In three to four days, the trend was regression of the inflammatory cellular reaction. Necrosis was present to a slight degree in one rat. The regression was still more marked in the period from ten to twelve days. The rats showed fairly complete healing. After ten days, one rabbit still showed necrosis of muscle and both rabbits showed foreign body reaction, multinucleated giant cells. All animals showed dilated cyst-like spaces in the fibrous connective tissue between the muscle bundles. The rabbits were definitely more susceptible to injury by these preparations. This evidently was a species difference in reaction. The emulsions seemed to be a little more irritating than a comparable composition in oil vehicle.

3. Reaction in Man.—From 0.5 ml. to 1.0 ml. of material was injected intramuscularly into a segment of the external anal sphincter before operation for hemorrhoidectomy. At operation, one to four days later, a biopsy was taken of the injected segment of the muscle and in one instance of the skin and subcutaneous tissue at the site of injection. Sections were fixed as previously described. The results are shown in table 4.

The reaction of man to these drugs resembles the reaction of the rat. There is definitely less tendency to necrosis of muscle than in the rabbit though some degeneration is always present. The cellular

Table 3. *Progress of Reaction*

Day Animal Sacrificed	RABBIT		RAT	
	Anucaine (New Formula) I	Emulthesin No. 2 II	Morgan's P. B. B. I	Emulthesin No. 1 II
	Procaine Base 1.0 Butyl p-amino-benzoate 4.0 Benzyl Alcohol 5.0 Oil q.s. 100.0	Procaine Base 1.25 Benzyl Alcohol 5.0 Oil 25.0 Water q.s. 100.0 Penicillin G 10,000 u. per ml.	Procaine Base 1.5 Butyl p-amino-benzoate 6.0 Benzyl Alcohol 5.0 Oil q.s. 100 0	Procaine Base 1.0 Butyl p-amino-benzoate 5.0 Benzyl Alcohol 4.0 Oil 25.0 Water q.s. 100.0
1	Moderate diffuse cellular reaction mostly neutrophils, many round cells Patchy necrotic areas	Diffuse marked infiltration with neutrophils. Some round cells present. Patchy areas of necrosis	Infiltration with neutrophilic and round cells. Approximately same as II (Rat)	Diffuse infiltration with neutrophilic and round cells. Moderate oedema. No necrosis or abscess
3-4	Moderated diffused infiltration mostly round cells. Sl. greater amount of necrosis but still patchy. Oil cysts present	Same as for Anucaine	Same as II (Rat), except no abscess or necrosis.	Diffuse infiltration with round cells and few plasma cells, few neutrophils. One area muscle necrosis with small abscess at one point
10-12	Mild round cell infiltration much subsided. Oil cysts in F. C. T. Giant cells (multi-nuclear near cysts). Few fibroblasts. No evident necrosis	Mild round cell infiltration, necrotic areas still evident in muscle. Oil cysts present with foreign body giant cells present.	Same as II (Rat)	Very little inflammation of muscle. Intermuscular F.C.T. shows round cell infiltration. No necrosis. Oil cysts present

Table 4. *Reaction in Human Muscle*

Days after Injection	Morgan's P.B.B. I	Emulthesin No. 1 II	Emulthesin No. 2 III	Emulthesin No. 3 IV
	Procaine Base 1.5 Butyl p-amino-benzoate 6.0 Benzyl Alcohol 5.0 Oil q.s. 100.0	Procaine Base 1.0 Butyl p-amino-benzoate 5.0 Benzyl Alcohol 4.0 Oil Sesame 25.0 Water q.s. 100.0	Procaine Base 1.25 Benzyl Alcohol 5.0 Oil Sesame 25.0 Water q.s. 100.0 Penicillin 10,000.0 u per 1 ml.	Benzyl Alcohol 5.0 Oil Sesame 25.0 Water q.s. 100.0 Penicillin 10.000.0 u per 1 ml.
No. of cases Amt. Inj.	4 cases: 2-0.5 ml. 2-1.0 ml.	2 cases: 1 0 ml. each	4 cases: 3-0.5 ml. 1-1.0 ml.	
1	Many neutrophils, oedema, degeneration of muscle manifested by pale staining, fragmented nuclei. No actual necrosis	Diffuse infiltration with neutrophils—some round cells—oedema present—degeneration of muscle evident but no necrosis	Few round cells. In 3 cases no degeneration. 1 case minimal degeneration. Slight oedema present. No necrosis.	
	0.5 ml. No neutrophils, focal degeneration otherwise same			
No. of cases Amt. Inj.		2 cases: 0.5 ml. (4 days)		1-0.75 ml. (3 days)
3-4		Subcutaneous reaction shows moderate round cell infiltration. Muscle shows evidence of degeneration. Some small areas of focal necrosis		Occasional round cells seen. Minimal focal degeneration of muscle evident. Slight oedema.

reaction to smaller doses of drugs was less acute than with larger doses. They did not call out a neutrophilic response and muscle degeneration was less evident.

From this study, the following conclusions were drawn: (a) Tissue reactions to a variety of preparations containing benzyl alcohol in the rabbit, rat and man varied only in degree; in kind, they were alike. (b) The rabbit being the more sensitive indicator, its reaction more readily demonstrated the muscle necrotizing property of the benzyl alcohol. In a less "sensitive" species like man, the preparations were capable of producing degeneration with occasional areas of focal necrosis. Smaller doses produced less inflammatory reaction. (c) In the loose subcutaneous tissues the reaction to benzyl alcohol, alone or in combination with other drugs, in oil or water, was negligible; showing only oedema and occasional slight hemorrhage which may have been traumatic. (d) Preparations containing benzyl alcohol and water seemed slightly more irritating than similar oil preparations on intramuscular injection, but not subcutaneously. (e) One ml. of any of the emulsion anesthetics injected contained at most 4 minims of oil. These anesthetics were injected as recommended for the oil preparations, through multiple needle punctures and the areas well massaged after the injection. It would be difficult to imagine pooling of the oil particles with this procedure and with this small amount of oil broken down into microscopic sized particles. The muscle reactions to these preparations resembled more the reaction of benzyl alcohol in water or saline and seemed slightly more irritating than the oil preparations. Pooling of oil per se was considered of secondary importance. The irritating quality of the preparations was inherent in their anesthetic drug content, especially the benzyl alcohol. The oil itself was simply a foreign body and a necessary vehicle.

B. Clinical Study:

Laboratory experiments repeatedly demonstrated negligible reactions on subcutaneous injection even in the rabbits. Clinically, abscess formation following injection of these preparations was manifested only in the subcutaneous tissues. A study was undertaken therefore to evaluate another factor, depth of injection. Emulsion preparations were preferred for this work.

Procedure.—Following surgery on the anal canal, different emulsion preparations were injected, in different ways, forming three study groups. In all the cases, the emulthesin was injected as the needle was advanced into the tissues, through multiple punctures, and the areas massaged after injection.

Group 1. Compiled in table 5. The emulthesin used contained butyl p-aminobenzoate. Dosage was not standardized. It was determined by the extent of surgery. It was concluded from the previous study that in areolar tissue there was negligible reaction and it was considered that with larger doses, more tissue was exposed to the action of the anesthetic substance.

In nine cases, from 5 to 32 ml. of anesthetic was injected deeply behind the anus in a fanlike manner as suggested by Morgan for his preparation. No abscess or induration was evident during the postoperative period in this group. However, one case (32 ml.) developed chills and fever on the third postoperative day. Complete and thorough examination, including x-rays, disclosed no apparent reason for the septic type of fever. This patient was given penicillin and recovered uneventfully. Another case developed a post-anal abscess six months after injection, without chills or fever.

Table 5. *Human Tissue Reactions Using Emulthesin No. 1**

Case	Diagnosis	Amount Emulthesin Injected	Tissue Reaction	Note
1.	Anal ulcer	5 ml.	0	
2.	Combined Hemorrhoids	13 ml.	0	6 mos. P.O. post-anal induration and abscess. No chills, no fever.
3.	Combined Hemorrhoids	15 ml.	0	
4.	Anal ulcer	10 ml.	0	
5.	Combined Hemorrhoids	32 ml.	0	Chills and fever 101°-102°F. No abscess or induration present. Penicillin given.
6.	Fistula-post-anal ulcer	13 ml.	0	
7.	Combined Hemorrhoids	27 ml.	0	
8.	Cryptitis Hemorrhoids	10 ml.	0	
9.	Combined Hemorrhoids	20 ml.	0	

Emulthesin No. 1: Percent
Procaine Base 1
Butyl p-aminobenzoate 5
Benzyl Alcohol 4
Oil Sesame 25
Water q.s. 100

Emulthesin injected as suggested by Morgan. 10-15 ml. injected deeply behind anus in a fan-like manner. This small group significant only in comparison with Tables 6, 7, 8

The number of cases in this group was purposefully small because it has always been known that deep injections were less prone to be followed by abscess. This group served merely as a control for the emulthesin. However, it suggested the possibility of sterile abscess occurring deep in the tissues. In such an event, it is conceivable that if the abscess were small and sterile it might never manifest itself and could eventually be absorbed. Furthermore, it suggested a possibility of secondary infection of tissues injured by the injection. In the case showing septic temperature, the infection may have been resolved by penicillin before abscess formation had occurred.

In summary, no evidence of abscess formation occurred in nine cases during the postoperative and convalescent period in which large doses of emulthesin had been deposited deeply and widely, effecting large areas of areolar tissue.

Group 2. Compiled in table 6. The emulthesin used contained butyl p-aminobenzoate in thirty-four cases and no butyl p-aminobenzoate in four cases. In thirty-six of these cases from 2 to 8 ml. of emulthesin was injected under each wound; the latter dose used in single, larger wounds following excision of an anal ulcer. On the average, from 2 to 3 ml. of the emulsion anesthetic was injected in such a manner as to infiltrate evenly the subcutaneous

Table 6. *Human Tissue Reactions Using Emulthesin No. 1 and No. 2**

Case	Diagnosis	Amount Emulthesin Injected into Each Area	Tissue Reaction	Note
1.	Combined Hemorrhoids	3 ml.	Abscess	Fever and chills.
2.	Combined Hemorrhoids	2.5 ml.	0	
3.	Combined Hemorrhoids	3 ml.	0	
4.	Combined Hemorrhoids	5 ml.	Abscess	Fever and chills.
5.	Combined Hemorrhoids	7 ml.	Abscess	No known fever.
6.	Combined Hemorrhoids	3 ml.	0	
7.	Combined Hemorrhoids	3 ml.	0	Penicillin added to emulthesin. Loss sphincter anteriorly with atrophy.
8.	Combined Hemorrhoids	3 ml.	0	Penicillin as above.
9.	Anal Ulcer	4 ml.	0	Penicillin as above.
10.	Combined Hemorrhoids	3 ml.	0	Penicillin as above.
11.	Combined Hemorrhoids	3 ml.	0	Penicillin as above.
12.	Combined Hemorrhoids	3 ml.	0	Penicillin as above.
13.	Combined Hemorrhoids	3 ml.	0	Penicillin as above.
14.	Ulcer-Comb. Hemorrhoids	3 ml.	0	Penicillin as above.
	Emulthesin No. 1		*Per Cent*	
	Procaine Base		1	
	Butyl p-aminobenzoate		5	
	Benzyl Alcohol		4	
	Oil Sesame		25	
	Water q.s.		100	
15.	Combined Hemorrhoids	3 ml.	0	Penicillin as above.
16.	Pruritis Ani	20 ml.	0	Penicillin as above.
17.	Combined Hemorrhoids	3 ml.	Slight Induration	Penicillin G. added. Second injection of emulthesin.
18.	Ulcer Hemorrhoids	3 ml.	0	Penicillin G. added.
19.	Anal Ulcer	3 ml.	0	Penicillin G. added.
20.	Pruritis Ani	20 ml.	0	Penicillin G. added. Second injection of emulthesin.
21.	Combined Hemorrhoids	3 ml.	Slight Induration	Penicillin added. 2nd injection of emulthesin.
22.	Combined Hemorrhoids	3 ml.	0	Penicillin G added.
23.	Combined Hemorrhoids	3 ml.	0	Penicillin G added.
24.	Anal Ulcer	2 ml.	0	Penicillin G added.
25.	Anal Ulcer	2 ml.	0	Penicillin G added.
26.	Pruritis Ani	5 ml.	0	Penicillin G added.
27.	Anal Ulcer	8 ml.	0	Penicillin G added.
28.	Anal Ulcer	8 ml.	0	Penicillin G added.
29.	Anal Ulcer	4 ml.	0	Penicillin G added.
30.	Combined Hemorrhoids	3 ml.	Abscess	Penicillin G added. Chills, fever.
31.	Combined Hemorrhoids	3 ml.	Abscess	Chills and fever. Penicillin G. added.
32.	Ulcer & Comb. Hemorrhoids	3 ml.	0	Penicillin G. added.
33.	Combined Hemorrhoids	3 ml.	0	Penicillin G. Added.
34.	Combined Hemorrhoids	3 ml.	Abscess	Penicillin G. Added. No chills or fever.
		Emulthesin No. 2*		
35.	Anal Ulcer	3 ml.	0	
36.	Anal Ulcer	3 ml.	0	
37.	Combined Hemorrhoids	2 ml.	Abscess	Chills and fever.
38.	Anal Ulcer	2 ml.	0	

**Emulthesin No. 2* — *Per Cent*: Procaine Base 1.25; Benzyl Alcohol 5.; Oil Sesame 25.0; Water q.s. 100.

Emulthesin injected in such a manner as to evenly infiltrate the subcutaneous layer immediately subjacent to each area where skin and external hemorrhoids were excised. In Pruritis Ani, injected subcutaneously.

layer immediately subjacent to each area where skin, with the underlying external hemorrhoids, had been excised at operation; thereby a "bed" of emulthesin was placed under each wound. Care was taken not to place the anesthetic submucosally nor was the mucosa punctured. Several minims were injected into the sphincter where it was exposed. It will be noted that these injections were rather superficial, immediately subjacent to the exposed subcutaneous tissue.

In the first six cases, abscesses occurred three times. In two cases, the patient had chills and fever. In one case, the course was that of a sterile abscess. Grunberg[12] et al's. work suggested that infection might be prevented if penicillin were injected at the time the emulsion injection was made. Thereafter, penicillin G. was dissolved in the water component of the emulthesin before emulsification so that the anesthetic contained 10,000 units of penicillin G. per ml. The addition of penicillin was continued throughout this work.

In the next twenty-three cases, no infection occurred with superficial injection. Two cases showed minimal induration but these cases represented multiple injections into the same areas.

In the next five cases, three abscesses occurred; one abscess occurred in the four cases using the emulthesin without butyl p-aminobenzoate. Three of these latter abscesses were septic and one aseptic.

This group of thirty-eight patients represented a total of ninety-four injected areas. In cases of anal ulcer, only one area was injected. In each hemorrhoid case three areas of skin were excised under each of which an injection was made. No case developed an abscess in more than one injected site. Case 7 showed normal sphincter control for one month following operation. Subsequently, atrophy of the external sphincter developed anteriorly so that the external sphincter was indescernible and partial incontinence developed.

In summary, in Group 2, thirteen injected areas received doses larger than 3 ml. Three cases of pruritis ani were given 20, 20 and 5 ml. respectively. None developed abscess. Four cases of anal ulcer were given 4, 8, 8, 4 ml. respectively and no abscesses developed. Six wounds following hemorrhoidectomy were given from 5 to 7 ml. and two developed abscess. Eighty-one wounds following hemorrhoidectomy were given doses of 3 ml. or less and five abscesses occurred. No conclusions are drawn from these figures regarding the size of dose and the occurrence of abscess. Too many variables were present in this study. All that can be stated is that seven abscesses occurred with ninety-four injections. Septic and aseptic abscesses occurred, the former more frequently. The addition of penicillin to the anesthetic possibly lowered the incidence of infection introduced at the time of injection but did not eliminate abscess formation, possibly because infection was introduced later. One case of sphincter atrophy occurred resulting in partial incontinence.

In comparison with the nine cases recorded in table 5, it is concluded that superficial injections are more prone to develop abscess even though considerably smaller doses of the anesthetic are used.

Group 3. This group consisted of two parts com-

piled in tables 7 and 8. Table 7 represents twenty-four cases in which the emulthesin contained procaine base. Table 8 represents eleven cases in which the emulthesin contained no procaine base and consisted of benzyl alcohol, oil and water only. In this group, from 0.5 to 1 ml. of the emulthesin was injected into the areolar tissue deep to the exposed part of the external sphincter, through multiple punctures.The anesthetic was thereby deposited in the layer between the combined longitudinal tendon and the external sphincter. The anesthetic was deposited under the external sphincter, but actually it was rather superficial in reference to the

Table 7. *Human Tissue Reaction to Emulthesin No. 2**

Case	Diagnosis	Amount Emulthesin Injected into Each Area	Tissue Reaction	Note
1.	Combined Hemorrhoids	.75 ml.	0	
2.	Combined Hemorrhoids	.5 ml.	0	
3.	Anal Ulcer	.75 ml.	0	
4.	Combined Hemorrhoids	.75 ml.	0	
5.	Combined Hemorrhoids	.5 ml.	0	
6.	Combined Hemorrhoids	.75 ml.	0	
7.	Combined Hemorrhoids	.75 ml.	0	
8.	Combined Hemorrhoids	.75 ml.	0	
9.	Anal Ulcer	1.0 ml.	0	
10.	Combined Hemorrhoids	1.0 ml.	Small Abscess Small fistula	No fever.
11.	Combined Hemorrhoids	1.0 ml.	0	
12.	Ulcer and Comb. Hemorrhoids	.75 ml.	0	
13.	Combined Hemorrhoids	.75 ml.	0	
14.	Combined Hemorrhoids	.5 ml.	0	
15.	Fistula and Hemorrhoids	.5 ml.	0	
16.	Combined Hemorrhoids	.75 ml.	0	
17.	Combined Hemorrhoids	.5 ml.	0	
18.	Anal Ulcer	1.0 ml.	0	
19.	Combined Hemorrhoids	.5 ml.	0	
20.	Combined Hemorrhoids	.75 ml.	0	
21.	Anal Ulcer	2.0 ml.	0	
22.	Anal Ulcer	2.0 ml.	0	
23.	Combined Hemorrhoids	.75 ml.	0	
24.	Combined Hemorrhoids	.75 mil.	0	

Emulthesin No. 2 — *Per Cent*: Procaine Base ..... 1.25; Benzyl Alcohol ..... 5.; Oil Sesame ..... 25; Water q.s. .....100. Emulthesin injected into areolar tissue through several punctures deep to the exposed part of the external sphincter and between it and the combined longitudinal tendon, (fig. 1).

wound on the skin side as well as on the anal side. It would be noted also that the amount of anesthetic used was less than in group 2, at least one-third in the usual case. The dosage was determined by the extent of the external sphincter exposed at operation. On the examination of table 7, it will be seen that one aseptic abscess occurred in the twenty-four cases. This represented a total of sixty-two injected areas. On examination of table 8, it will be noted that one asceptic abscess occurred in eleven cases or in a total of twenty-nine injected areas. Both of these abscesses were small and relatively insignificant. One healed spontaneously and one developed a short fistula which was incised in the office and healed subsequently.

This group is most interesting when compared with group 2. First, only two abscesses occurred with ninety-one injections. Both abscesses that occurred were aseptic, and one occurred with emulthesin containing benzyl alcohol as the only active drug. Secondly, in group 3 the injections, while deep to the external sphincter, were quite superficial in relations to the wound on the skin side and to the wound in the pecten on the anal side. Finally, while it may be argued that the amount injected in group 3 was small compared to the injections in group 2, it can be stated that the amount of anesthetic per unit of injected area was equal or greater in group 3. The size of the area subjected to the action of the emulthesin in group 2, however, was larger than in group 3. In group 1, this area was largest and no abscess occurred; and for emphasis, in group 2, no abscess occurred following surgery in ten cases of anal ulcer though larger areas and larger doses were involved in these cases. The size of the area infiltrated did not seem to be related to the frequency of abscess formation. A more definite relationship exists between the occurrence of abscess and superficial injection and the site of these superficial injections. The concept that superficial injections predispose to abscess formation may have to be modified to take into consideration their location and possibly the lymphatic drainage of the areas injected.

Table 8. *Human Tissue Reactions to Emulthesin No. 3**

Case	Diagnosis	Amount Emulthesin Injected into Each Area	Tissue Reaction	Note
1.	Combined Hemorrhoids	1.0 ml.	0	
2.	Combined Hemorrhoids	1.0 ml.	0	
3.	Combined Hemorrhoids	1.0 ml.	0	
4.	Combined Hemorrhoids	0.8 ml.	small abscess	Afebrile and spont. drainage with healing
5.	Combined Hemorrhoids	0.75 ml.	0	
6.	Combined Hemorrhoids	0.8 ml.	0	
7.	Combined Hemorrhoids	0.8 ml.	0	
8.	Anal Ulcer	1.5 ml.	0	
9.	Anal Ulcer	1.0 ml.	0	
10.	Combined Hemorrhoids	0.75 ml.	0	
11.	Combined Hemorrhoids	0.75 ml.	0	

Emulthesin No. 3 — *Per Cent*: Benzyl Alcohol ..... 5; Oil Sesame ..... 25; Water q.s. .....100. Emulthesin injected into areolar tissue through several punctures deep to the exposed part of the external sphincter, between it and the combined longitudinal tendon.

Comment

Benzyl alcohol is a tissue irritant that is capable of causing degeneration of human muscle (also see case 7, table 6). Subcutaneously, in man, it is capable of causing sufficient tissue reaction at times to produce an aseptic abscess. Occasionally, the damaged tissue becomes infected and septic abscess

results. Deep injections appear less prone to develop abscess for two possible reasons. First, a small aseptic abscess may never come to the surface and manifest itself. Secondly, lymphatic drainage may be such as to make secondary infection less likely. Superficial injections are more prone to cause abscess formation when they are farther away from the anal canal and in the path of lymphatic drainage.

Summary

1. The irritative qualities of the oil soluble anesthetics rest mostly in their drug content, particularly the benzyl alcohol, even in 5 per cent concentration.

2. Pooling of the oil is of secondary importance. Pooled oil presents the problem of a foreign body in the presence of inflammation.

3. Secondary infection plays a major part in production of abscess following injection of the oil soluble anesthetics.

4. Lymphatic drainage into an injected area or failure of drainage out of the area may be the reason for abscess occurring more frequently after superficial injection.

5. From the viewpoint of tissue reactions, a more desirable use of the oil soluble anesthetics would tend to use less oil, to inject less total anesthetic, to inject the anesthetic mixtures subcutaneously and to avoid the muscles and to place the anesthetic near the anal canal. All of these criteriae are met by the method described in group 3. Later it will be shown that from the viewpoint of pain relief, this method is quite satisfactory.

III. A STUDY OF THE ANESTHETIC CHARACTER OF THE PREPARATIONS

A study of the anesthetic properties of any drug or preparation can be done with laboratory animals but, in the final analysis, the patient is the one who can give the most valuable information. A study of the problem of prolonged anesthesia in patients is complicated by a multitude of factors. For example, most patients expect extreme pain after hemorrhoidectomy and many of them unconsciously exaggerate their suffering. Emotional factors play an important role postoperatively, especially in patients recovering from anal surgery. Furthermore, the night nursing staff is most prone to give hypodermics of morphine to patients on the slightest provocation. In the beginning of this study, orders were left to give the patients morphine if needed. It was not desired to deprive the patient of relief just to prove or disprove an idea. Sometimes the patient actually fought off the bedtime hypodermic. While the percentage of patients that needed supplemental medication will be tabulated, it was not considered too important to the work. The study concerned itself with objective determinations whenever possible.

Laboratory Study

A. Guinea pigs were given intracutaneously 0.5 ml. of emulsion anesthetic No. 1 (formula similar to Morgan's P.B.B. and anucaine). The injected areas were tested with electric shock from the induction coil. According to Chen[13] analgesia lasted five hours on the average.

B. Chen[13] reported that the same preparation in the rabbits eyes gave anesthesia for three hours.

C. In human tests, 2 ml. of the anesthetic emulsions was injected four fingers above the patella and to its lateral side thereby blocking the terminal lateral branches of the intermediate cutaneous nerve of the thigh. This was done many times on myself and others, using Morgans P.B.B. and Emulthesin I and II. Anesthesia lasted on the average three hours.

D. If 4 ml. was used, anesthesia lasted longer, from four to five hours.

E. All of this agreed nicely with Kelly's[4] findings. He injected 3 ml. of Morgans P.B.B. under the skin and over the tibia so as to occupy an area three inches in diameter. This was done on himself several times. Anesthesia lasted only three hours.

F. Thirty ml. of emulthesin No. 1 was injected into the caudal canal of ten patients on whom hemorrhoidectomy was to be done. Two patients failed to get sufficient anesthesia to permit operation. Eight patients got adequate anesthesia for the surgery and following operation the perianal skin was tested by grasping with an Allis clamp. Anesthesia lasted six hours on the average. Thereafter, sensations of touch and pain were normal.

This work indicated that these preparations would give anesthesia but that from three to six hours were the limits of duration. Total dosage was a factor in duration, the higher the dose the longer lasting the analgesia. In the caudal cases, 35 per cent oil preparations seemed to give longer anesthesia than the 25 per cent oil preparations.

From three to six hours anesthesia is prolonged but not in the sense that one uses the term. By prolonged anesthesia, one means a minimum of three or more days duration. From these findings, one must agree with Kelly when he writes "Experiments have demonstrated that the claims made on behalf of oil soluble local anesthetics (i.e. proprolonged anesthesia cannot be substantiated. How then to account for all the claims made by many capable investigators? I believe the answer to this question lies in two considerations: (1) the dosage administered, and (2) the acceptance of subjective relief from pain as proof of anesthesia.

Clinical Study

1. Regarding dosage. Patients in group 1, table 5 received higher doses than in the other groups, that is from 5 to 32 ml. On analysis the following was found: One patient required several hypodermics postoperatively (case 5). This patient's wounds were insensitive to touch and to the application of alcohol. One patient required 10 grains of aspirin postoperatively. Seven others required no other postoperative analgesic and none had pain with their bowel movements. Testing of the skin wounds for sensitiveness revealed that anesthesia averaged

about twenty days, running from ten to twenty-six days. In one case, on the fourteenth postoperative day, the skin was incised without additional anesthesia. One case each on the eleventh, sixteenth and twenty-second postoperative day had skin tags removed without additional anesthesia.

From the findings in this group, there can be no question about producing prolonged anesthesia with these preparations. The doses were larger and evidently denervation, as suggested by Duncan, had been accomplished. Therefore, with preparations containing 5 per cent benzyl alcohol, if sufficient material is injected, prolonged anesthesia can be produced.

2. Regarding what is meant by the acceptance of subjective relief from pain as proof of anesthesia patients in group 2, table 6, received smaller doses (3 ml.) but the material was placed superficially under the wounds and into the sphincter muscle. Twenty-three of thirty-eight patients required no supplemental medication for relief of pain postoperatively. These wounds were tested daily by stroking with an applicator and a most interesting observation was made. Whereas, in patients not receiving the injection of emulthesin, stroking caused pain with even a light stroke; in these patients moderate stroking caused no pain, yet the touch sensation was present. The wounds were sensitive to touch but had definite hypoesthesia. Often the stroking was described as "tickling." On the average, hypoesthesia lasted twelve days. All had some degree of sphincter relaxation and well more than one-half of them had no pain with bowel movements. The remainder had some burning, but *none complained except when questioned directly concerning discomfort.* Four of these cases received Emulthesin No. 2 with the same results, even though the latter contained no butyl p-aminobenzoate.

Group 3. (Section A, table 7.) This group received the smallest doses (from 0.5 to 1.0 ml). In twenty-four cases, six received no supplemental medication. Bowel movements on the average were "most tolerable," "less painful than expected" to "no pain at all." Hypoesthesia lasted twelve days on the average judged by the patient's statement. This group was somewhat more fearful of digital dilatation postoperatively than group 2, but not to the degree as in patients on whom no prolonged anesthetic had been used. None thought the operation intolerable and on questioning all said that if necessary they would still have the operation knowing what they did concerning its discomfort. All of these cases were injected with a preparation containing no butyl p-aminobenzoate. Sphincter relaxlaxation was moderate to slight.

Group 3. (Section B, table 8.) Benzyl alcohol alone was used in emulsion in eleven cases. Five needed no supplemental medication. Pain with bowel movements was minimal and most tolerable except in one. Digital dilatation was uncomfortable as in the former group and this group considered the operation as "not unusually painful."

It was decided to see what effect 4 per cent benzyl alcohol in water (maximum solubility) would have on relief of postoperative pain. In four cases, from 0.5 to 1.0 ml. of 4 per cent benzyl alcohol in water was injected as in group 3. All needed supplemental medication. All had pain with bowel movements. All had burning pain in the area even after seven days, of which they complained bitterly. All had relaxation of the sphincter. All showed slight hypoesthesia to stroking of wounds under which the benzyl alcohol had been injected.

Comment

It was obvious that only larger doses of these preparations gave prolonged anesthesia and smaller doses gave hypoesthesia only. The latter with sphincter relaxation gave adequate subjective relief with little complaining on the part of the patient. Without careful questioning, this might have been interpreted as proof of anesthesia. Undoubtedly the uncertainty of action of these agents was often encountered when smaller doses were administered, or larger doses poorly injected; i.e., in relation to larger nerves, or when the patient complained in spite of the hypoesthesia. It seemed that benzyl alcohol alone in an emulsion was capable of producing as good a hypoesthesia as was benzyl alcohol plus procaine base, the latter doing as well as benzyl alcohol plus procaine base plus butyl p-aminobenzoate. However, injections of 5 per cent benzyl alcohol in emulsion or 4 per cent in water under wounds as in group 2 and testing for sensitivity did not seem to produce as effective an hypoesthesia as the emulsion containing procaine base and benzyl alcohol. Finally, in four cases, 4 per cent benzyl alcohol in water caused prolonged sphincter relaxation but produced much burning pain in the injected areas, possibly due to tissue injury, sufficient to irritate but insufficient to cause denervation.

Summary

As regards the anesthetic properties, benzyl alcohol seems to play the major role in producing prolonged anesthesia or hypoesthesia. In water in 4 per cent concentration it is too irritating and produces considerable and prolonged burning pain. The role of procaine base has not been determined as yet, but it is not difficult to accept the evidence, clinical and laboratory, as to its effectiveness. It is believed that its role is mostly that of enhancing the functional block on initial injection. Butyl p-aminobenzoate qualitatively seems to be useless and since it is water insoluble and in volume represents quite a bulk of foreign material, it is concluded that it should be eliminated from all preparations until proven to have definite and necessary value. The oil is necessary for dissolving the procaine base, for obtaining benzyl alcohol in more than 4 per cent concentrations and for smoother and prolonged action of the benzyl alcohol. By allowing the benzyl alcohol to diffuse more slowly and to act over a longer period of time the action is more certain and the patient does not suffer with the burning

discomfort that accompanies the benzyl alcohol in water preparations. The observation that benzyl alcohol properly used can produce a diminution of pain sense without the loss of tactile sense introduces a possible new concept that presupposes selective action of the benzyl alcohol on the pain fibers without affecting the other fibers of a nerve.

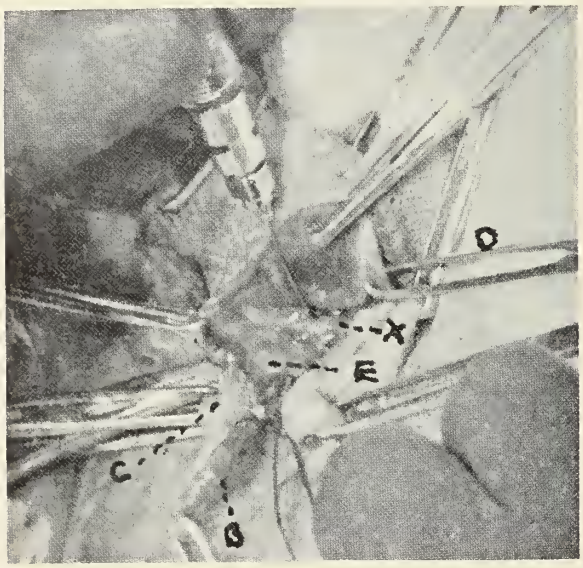


Fig. 1. Shows the exposure of the external sphincter (X). The skin wound edges have been retracted (D). The wedge of skin to be excised with the underlying external hemorrhoids has been pulled aside (C) as has been the internal hemorrhoid (B) thereby exposing the combined longitudinal tendon (E) (14). A hypodermic needle attached to a syringe is used to indicate the outer border of the external sphincter. This is the point of injection to place the anesthetic deep to the sphincter and superficial to the combined longitudinal tendon.

Conclusions

1. Benzyl alcohol is a tissue irritant that is capable of causing degeneration of human muscle, of destroying nerves and of causing sufficient tissue reaction at times to produce an aseptic abscess.

2. Benzyl alcohol seems to play the major role in producing prolonged anesthesia or hypoesthesia, probably by chemical degeneration. Larger doses produce complete anesthesia; smaller doses, hypoesthesia. Other drugs are relatively unimportant for the production of these effects.

3. The effect of benzyl alcohol is controlled better in solutions of oil than in water, the oil allowing higher concentrations, slower diffusion and prolonged action with resulting less irritation and more effective denervation. It is noted that nerve degeneration is always followed by regeneration.

4. Oil as a vehicle is somewhat of a nuisance. It is difficult to handle and is slowly absorbed from the tissues. Pooling of the oil is of secondary importance. Pooled oil presents the problem of a foreign body in the presence of inflammation caused mostly by the benzyl alcohol. This predisposes to abscess formation.

5. Secondary infection plays a part in production of abscess following injection of the oil soluble anesthetics. Lymphatic drainage into the injected area is considered of major importance in the production of septic abscess. The precept that superficial injection predisposes to abscess formation is modified to take into consideration this factor; the site of the injection is also important. Superficial injections are more prone to result in abscess the farther away they are from the anal canal (except posterior midline) and in the path of lymphatic drainage.

6. For use following anal surgery, to make the postoperative period more tolerable with a minimum of complications, the following is recommended:

a. The use of emulsion anesthetics containing no anesthetic drugs except benzyl alcohol in 5 per cent concentration, with or without procaine base. These are effective and yet are low in foreign body content; i.e., excess oil, butyl p-aminobenzoate. Also it lends itself to use of soluble penicillin salts thereby reducing the chances of introducing infection at the time of injection.

b. The injections should not be given into the musculature. They should be given as in group 3, that is, under the external sphincter, between it and the combined longitudinal tendon (see fig. 1). No more than 1 ml. should be used in each area in which the sphincter is exposed. This placing of the anesthetic permits the use of small volumes of anesthetic, yet makes the action more certain and lessens the tendency to abscess production. Should abscess occur, the condition is localized and simple to handle.

If used as recommended, hypoesthesia will be adequate for overall comfort and yet insufficient in degree to give two of the most common objections to complete prolonged anesthesia in this region; namely, masking of the urge to defecate and a too relaxed sphincter, a truly potential source of embarrassment for the patient.

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Acknowledgments are hereby made for considerable help from the Departments of Anatomy, Pathology, and Pharmacology.

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Postgraduate Review

SIGNIFICANCE OF RECENT STUDIES WITH ACTH AND CORTISONE

MEDICAL PROGRESS REPORT

CYRIL M. MacBRYDE, M.D.
ST. LOUIS

TWO HORMONES, one from the pituitary, the other from the adrenal cortex, have recently become available in sufficient quantities to permit clinical studies which are opening new approaches in the understanding and treatment of many disorders.

These hormones are the adrenocorticotropic factor of the anterior pituitary (ACTH) and 11-dehydro-17-hydroxycorticosterone (compound E, cortisone). Both are still scarce and expensive. ACTH is a protein and is obtainable only by extraction from animal pituitary glands. Cortisone is a steroid which now can be synthesized partially from other steroids of animal and plant origin and need no longer be obtained only from animal adrenal glands. The metabolic and therapeutic effects of ACTH and cortisone are largely similar, since ACTH acts by causing the recipient's adrenal cortices to produce cortisone and other adrenal cortex hormones.

PHYSIOLOGY OF ADRENAL CORTEX HORMONES

Following the isolation of epinephrine from adrenal extracts in 1901 by Abel and Takamine, independently, physiologists were able to demonstrate that this hormone of the medulla would not maintain life in adrenalectomized animals. It became evident that hormone secretion from the cortex probably supplied the life sustaining principle. However, the concentration of hormone in the cortex was low and in extraction there was contamination with the highly active substance epinephrin, so that many years of difficult work elapsed before adrenal cortex extracts were prepared which would maintain life indefinitely in adrenalectomized animals.

Hartman and coworkers (1930) and Swingle and Pfiffner (1930) prepared such extracts successfully and in the same year adrenal cortex extract was used with benefit in the treatment of Addison's disease.

At first it was assumed that there is only one adrenal cortex hormone. Some endocrinologists still incline to the belief that there may be only one parent hormone or basic chemical substance produced by the adrenal cortex. Chemists have identified twenty-eight steroid hormones isolated from cortical extracts. It is realized that the majority of these may represent modifications produced by chemical manipulations, not true hormones in the sense that they are active as such in the body.

An amorphous fraction remains after all known steroids have been removed from cortical extracts. This mysterious remainder is highly active in sustaining life after adrenalectomy.

The known adrenal cortical steroids fall into three groups according to physiologic activity: (1) those affecting electrolyte and fluid balance; (2) those affecting protein and carbohydrate metabolism; (3) those with anabolic and androgenic effects.

Group 1.—There is some overlapping of function of the hormones between the various groups. Six of the twenty-eight adrenal steroids are capable of maintaining life in adrenalectomized animals. Two of these are desoxycorticosterones, falling in Group 1 and affecting salt and water metabolism primarily. The only adrenal-type steroid now inexpensive, synthetically made and widely available is 11-desoxycorticosterone, usually used as the acetate (DCA). Although effective in promoting salt and water retention, potassium excretion and in elevating blood pressure, it is not complete replacement therapy in Addison's disease. Some doubt whether it is truly an adrenal cortex hormone; it is obtainable in only minute quantities from the adrenal cortex.

Group 2.—The steroids which tend to accelerate protein breakdown and to increase glucose production are known as corticosterones. They also tend to cause sodium retention and potassium excretion, but are much less potent in this respect than desoxycorticosterone. "Cortisone," the pure steroid now available in limited quantities, is in this group.

Group 3.—This group includes those adrenal steroids with androgenic activity. They are related in structure to testosterone and are masculinizing effects and promote protein storage. The typical one is called androsterone.

The commercially available adrenal cortex extracts are aqueous solutions, effective in therapy, but standardized by life maintenance in animals, not by exact content of any of the various steroids. There is one exception to this (Lipoadrenal Cortex Extract, in oil) which is standardized also by a work test for compound E potency.

Cortisone is the name popularized for compound E. Compound F (17-hydroxycorticosterone) is even more potent in its effects upon carbohydrate metabolism. The principal adrenal steroid produced in response to ACTH is probably not compound E, but compound F.

THE ADRENOCORTICOTROPIC HORMONE

In 1933 Collip reported the isolation, in impure form, of ACTH. In 1943 several groups of investigators obtained it in pure form, unadulterated with other anterior pituitary hormone fractions.

ACTH administration to animals causes a strik-

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ing fall in the adrenal cortex content of cholesterol and of ascorbic acid. Direct evidence is lacking, but it is believed that cholesterol is utilized in the formation of adrenal cortex steroid hormones.

The extremely sensitive ascorbic acid depletion response of the adrenal cortex to ACTH is used as a bioassay method for ACTH potency.

STRESS, ACTH AND THE ADRENAL CORTEX

If animals are subjected to stress, there is adrenocortical hypertrophy with fall in cholesterol and ascorbic acid, as after ACTH injection. Various stresses have this effect, e.g.; acute hemorrhage, exposure to extreme cold, scalding, surgical operations, injections of killed bacteria, stimulation of sensory nerves, injection of histamine, epinephrine, etc.

For many years physiologists have puzzled over what role the potent adrenal medullary hormone, epinephrine, may play in the body. It is not necessary to maintain life and comparative good health, but as Cannon in his classical work showed, it is vital as an emergency measure, large amounts entering the blood stream at times of special stress (pain, fear, rage). Note that emotional as well as sensory stimuli may cause the stress response.

As emphasized by Long[1] it seems that the common denominator in all these stress situations is stimulation of the autonomic nervous system with release of epinephrine. Injections of epinephrine or stimuli which cause secretion of epinephrine lead to release of ACTH and thus to increased output of the adrenal cortical steroids.

Still another link must be put into this chain of reaction to stress. This link is the hypothalamus. Hume[2] has shown that an intact hypothalamus is essential for normal release of ACTH by the pituitary. Certain localized lesions in specific areas of the hypothalamus abolish the usual response to epinephrine, even in the presence of intact pituitary and adrenal cortex. Likewise the importance of intact pathways through the central nervous system to the hypothalamus is demonstrated by Hume's observation that section of the spinal cord abolishes response to peripheral nerve stimulation by the pituitary-adrenocortical system, although epinephrine gives evidence of normal reactivity of the system.

DISEASES OF STRESS AND ADAPTATION

Data and clues have accumulated over a long period of time suggesting that the pituitary-adrenal system is important in reaction to stress and in mobilization of defense mechanisms. Selye[3] called the initial, abrupt and temporary response "the alarm reaction." With repeated or prolonged stress other phases become evident: for a time a stage of resistance—and eventually a stage of exhaustion. In the comprehensive review referred to, Selye proposed the concept that a variety of disease manifestations may not be specific morbid processes, but may constitute exhibition of various aspects of the "general adaptation syndrome." The "diseases of adaptation" may include hypertension, nephrosclerosis, periarteritis nodosa, rheumatic fever and rheumatoid arthritis and their pathologic manifestations may result from excessive adaptative reactions by the adrenal cortex.

CLINICAL IMPLICATIONS

It is, perhaps, advantageous to speculate at this point upon a number of clinical disorders and their possible position in relation to the general adaptation syndrome and to pituitary-adrenal activity. In the clinical shock syndrome there is lack of the reactive phenomena and one finds low blood pressure, low body temperature, decrease in muscle tone, hemoconcentration, anuria, edema formation, hypochloremia, acidosis, hyperpotassemia, leukopenia and formation of acute gastrointestinal ulcers.

The shock state may last only for minutes or for many hours, but unless it terminates fatally, the countershock phase follows, with signs of increased adrenocortical activity and reversal of most of the signs characteristic of shock. There is blood dilution, increase in blood volume, rise in blood sugar and chlorides, fall in blood potassium, rise in blood pressure and body temperature, alkalosis and diuresis.

In clinical medicine certain diseases such as nephritis, rheumatic fever, rheumatoid arthritis and acute peptic ulcer, seem sometimes to result from various types of acute stress: infections, exposure to cold, emotional trauma.

The "collagen diseases" are perhaps exhaustion states in which there has been repeated or prolonged stress. In some instances dramatic relief is obtained with ACTH or cortisone treatment in this group of disorders.

REMISSION IN COLLAGEN DISEASES: POSSIBLE MECHANISM

In recent years the term "collagen diseases" has been introduced into medical terminology to emphasize that several conditions previously considered distinct entities have common features: (1) are much alike in structural alterations; (2) exhibit lesions involving the same body tissues, and (3) are related to hypersensitivity reactions. The term "collagen disease" is a loose one. Some authors are inclined to include all allergic disorders, while others include only diseases showing collagen degeneration, involvement of serosa, blood vessels and joints.

Probably the term "collagen disease" is too narrow, for not only fibroblasts and their product, the collagen matrix, are involved, but other tissues and cells as well. Aegerter and Long[5] have presented the useful concept that certain cells arising from the primitive mesenchyme, including reticulum, and their products, globulin, collagen, and perhaps hyalin, osteoid and muscle, play a role in the defensive as well as in the reparative processes of the organism. When the responses of the mesenchymal defense unit are excessive, certain diseases may result. A group of these diseases may

be arranged as follows: (1) serum sickness, (2) periarteritis nodosa, (3) rheumatic fever, (4) rheumatoid arthritis, and (5) disseminated lupus erythematosus.

Common features of these disorders are: collagen degeneration, involvement of blood vessels and of connective tissue in the heart, in the joints and in other parts of the body; serosal involvement, lymphadenopathy, splenic enlargement and rise in serum globulin. The "allergic" component is well recognized in serum sickness and periarteritis nodosa, but is less evident as one progresses through the series of diseases. All seem to exhibit abnormal reactions of the mesenchymal defense unit. In experiments upon rabbits ACTH and cortisone have been shown to suppress antibody formation.[6]

Some of the characteristics of the collagen diseases suggest hypofunction of the adrenal cortex, for example, the lymphadenopathy, eosinophilia and hyperglobulinemia. In rheumatoid arthritis the asthenia, hypotension, abnormal sensitivity to heat, cold and exercise are possibly related to adrenocortical deficiency. Thus pathologic lesions due to prolonged or repeated adrenal cortex hyperreaction may later be seen in combination with symptoms of adrenal cortex exhaustion.

In addition, certain clinical aspects of the collagen diseases suggest relationships with steroid hormones: the sex incidence of lupus and rheumatoid arthritis (predominantly among females); relief of rheumatoid arthritis during pregnancy; recent dramatic relief reported with ACTH or cortisone therapy.

Increased permeability is a feature of some of these disorders. ACTH and cortisone have an antispreading effect. How is this reduction of swelling and spreading brought about?

Perhaps in this way: Hyaluronic acid is an important constituent of cell walls. Hyaluronidase is an enzyme which increases cell wall and membrane permeability. The adrenal cortex steroids have antihyaluronidase activity and thus may prevent abnormal transudations and exudations and the spreading of infection. Possibly the reduction of the pain and swelling of joints which occur so promptly in rheumatoid arthritis, gout, and rheumatic fever with ACTH and cortisone depends upon this antihyaluronidase action.

CLINICAL RESULTS WITH ACTH AND CORTISONE

In April 1949, Hench and his coworkers reported striking improvement in rheumatoid arthritis produced by administration of cortisone. Rheumatic fever likewise responded promptly but in both conditions, remissions lasted only as long as treatment was continued.[7] Thorn and his coworkers[8] induced remissions in these two conditions with ACTH and also in disseminated lupus erythematosus and in gout. Other studies have confirmed their observations.

In the last three years many groups have made observations upon the effects of ACTH and of cortisone, since amounts of these hormones sufficient for clinical study have become available. The field is still being widely explored, the hormones being used (1) as investigative tools to ascertain the various diseases in which adrenal cortical stimulation or substitution treatment may be useful, and (2) in more fundamental exploration of hormonal psysiology in relationship to broad physiologic or pathologic alterations.

In October 1949, fifty-two brief research papers were presented at a special Clinical ACTH Conference in Chicago.[9] A two day intensive session was devoted to clarification of objectives and exchange of the rapidly accumulating data indicating that vigorous stimulation of the adrenal cortex causes striking alterations in many diseases and definite responses in normal persons. In the year since then a number of important studies with ACTH and cortisone have been reported. Use of ACTH or of cortisone has given relief in the collagen diseases, and in hypersensitive states (asthma, urticaria, serum sickness, seasonal hay fever), and was also found useful in treating certain psychiatric disorders. Many patients receiving ACTH or cortisone experience an evident elevation of mood, or "steroid euphoria." In some instances the usual improvement of mood is not of normal degree but may be exaggerated. Some patients have exhibited manic symptoms, others have been depressed.

Certain types of lymphomata and leukemia have been influenced favorably. In resistant anemias of certain types, definite bone marrow stimulation with rise of reticulocytes and circulating red blood cells and hemoglobin has occurred.

Certain acute inflammatory diseases of the eyes have responded favorably to ACTH and cortisone: iritis, iridocyclitis, chorlioretinitis, choroiditis, retrobulbar neuritis, optic neuritis, sympathetic opthalmia, etc. Topical application of cortisone has proved effective in treating certain inflammatory lesions of the anterior segment of the eye: conjunctivitis, keratitis, iritis, etc.

A variety of severe skin conditions has responded favorably to ACTH and cortisone, notably pemphigus, angioneurotic edema, atopic dermatitis and exfoliative dermatitis.

Although there are suggestive lines of reasoning, as have been noted, which may possibly connect some of these clinical conditions with adrenal cortical function, in most of the disorders which have been benefited by these hormones, there is not according to present concepts any evidence of hormonal deficiency. It would thus appear that an excess of hormone is required to produce the favorable results.

In most of the chronic disorders ACTH and cortisone seem to produce improvement, often dramatic, but only temporary; the diseases are not cured. In the more acute conditions, particularly those in the allergic group, therapy with the hormones is more satisfactory.

In treatment of some of the chronic disorders (rheumatoid arthritis, for example) improvement often can be maintained as long as treatment is continued, but relapse promptly follows cessation of therapy. Two problems then arise: (1) the expense of continued treatment, and (2) the undesirable effects which may occur with excessive or prolonged use of the hormones.

METABOLIC EFFECTS IN MAN

As discussed in the beginning of this review, animal studies have revealed certain specific functions of the steroids produced by the adrenal cortex: (1) regulation of sodium and potassium excretion and water balance, (2) stimulation of gluconeogenesis and inhibition of carbohydrate utilization, and (3) the androgenic function leading to nitrogen and phosphorus retention (protein anabolism) and to increased excretion of 17-ketosteroids.

When used in clinical investigation, ACTH produced in human beings certain metabolic effects: increased urinary corticoids and 17-ketosteroids; increased urinary uric acid and potassium; fall in sodium excretion (and with salt and water retention, a gain in body weight); increased nitrogen excretion. The blood sugar may be elevated and glycosuria may occur in some patients receiving continued large doses. The electrolyte and water deviations tend to reverse toward normal after days or weeks of daily therapy, with spontaneous diuresis and loss of the excess salt and water retained.

Hematologic changes may be striking: there occurs a definite fall in the circulating eosinophils and a rise in neutrophils with a fall in lymphocytes. The fall in eosinophils is used clinically as a test of responsiveness of the adrenal cortex after ACTH or adrenalin injection ("the Thorn test"). In certain types of anemia there may be a great rise in reticulocytes, with elevation of red blood cell and hemoglobin levels.

Studies of the steroids in the urine suggest that the human adrenal cortex under stimulation by ACTH secretes primarily 17-hydroxycorticosterone (compound F) rather than 17-hydroxy-11-dehydrocorticosterone (compound E, cortisone).

When the adrenal cortex hormone, cortisone, is given, the metabolic effects are in general the same as when ACTH is given to a patient whose adrenal can respond. However certain hormonal differences must be kept in mind: ACTH is stimulatory treatment; cortisone is substitution therapy. Giving cortisone causes reduction in the patient's own cortisone production. In the future physicians will have to learn to define objectives, and to decide when stimulation is indicated, and when substitution is desired. In Addison's disease, for example, ACTH is ineffective (adrenal incapable of responding) but adrenal cortex extract or cortisone may be life-saving.

It has been observed in man and in laboratory animals that cortisone retards the formation of granulations and that it slows, but does not stop, epithelization.[10] It seems possible that such interference in wound healing occurs through changes in vessel permeability, through alteration of some enzyme system or through direct toxic effect on sprouting of blood vessels and differentiation of fibroblasts. Apparently surgery during ACTH or cortisone therapy should be avoided at least until further information is available.

Atrophy of the adrenals has been described in patients following prolonged cortisone therapy. Some workers have suggested ACTH therapy as cortisone treatment is gradually withdrawn to stimulate adrenal cortices which (during substitution treatment with cortical hormone) have been "put to rest."

CONTROL OF ADRENAL "SALT HORMONE" SECRETION

In our own studies in the Metabolism Division of Barnes Hospital we have been interested in several phases of the pituitary-adrenal system and its relation to states of hyperstimulation and of depletion or exhaustion. We are attempting to devise methods to judge the relative integrity of the adrenal cortex and to decide if and when adrenocortical substitution therapy or stimulation should prove beneficial.

We also have studied factors affecting adrenal salt hormone secretion. We have investigated adrenal cortex function under extreme dietary sodium restriction and compared the urinary output of 17-ketosteroids and cortin under such conditions with the hormone output during liberal salt intake. We have attempted to determine whether DCA can inhibit ACTH production. Our results indicate that a correlation does not exist between sodium intake and urinary steroids of the cortin and 17-ketosteroids type. We were also unable to find that DCA administration in man depressed ACTH liberation, since urinary cortin and 17-ketosteroids remained unchanged (Daughaday and MacBryde[11]).

Conn[12] found that DCA and ACTH reduce the salt lost in sweat, just as we found these hormones to decrease salt lost in the urine. His studies suggest that spontaneous acclimatization to heat consists of adrenal cortical stimulation via pituitary ACTH, with resultant salt conservation. Conn found that during excessive sweating with work in a hot room that there was evidence of increased ACTH activity: low salt sweat, negative nitrogen balance and high urinary uric acid excretion. Under such circumstances, with a severe stress calling for salt retention, the administration of DCA (or the restoration of positive NaCl balance by giving salt) restored nitrogen equilibrium to normal. Thus under extreme circumstances DCA seemed able to inhibit excessive ACTH production whereas in less extreme states of sodium restriction (rather than active sodium loss) such effects of DCA or salt could not be demonstrated.

OVERDOSAGE EFFECTS WITH ACTH AND CORTISONE

If used in excessive amounts over prolonged periods, ACTH or cortisone may produce in patients the signs and symptoms characteristic of Cushing's syndrome (adrenocortical hyperfunction): round face, hirsutism, acne, muscular weakness, edema, amenorrhea, purplish cutaneous striations, loss of carbohydrate tolerance (true temporary diabetes), negative nitrogen balance, alkalosis, low serum potassium. It is obvious that patients given these potent hormones must be kept under careful observation. Perhaps intermittent therapy and smaller doses can be shown to give the desired therapeutic effects while avoiding such undesired results.

Since involvement of the heart or kidneys may be present in many of the conditions for which ACTH or cortisone is used (rheumatic fever, or lupus erythematosus, for example), one must guard against aggravation of salt and water retention, which can be of considerable degree and of serious import under such circumstances. The sodium chloride intake can be restricted to prevent fluid retention. Weighing the patient daily provides a simple index to determine whether water retention exceeds the few pounds gain usually observed with ACTH or cortisone therapy.

Hypopotassemia may be signalled by muscular weakness and confirmed by serum K determination and by changes in the electrocardiogram. It may be necessary to insure an adequate K intake (2 to 4 gm. daily).

The CO_2 combining power may rise and the serum chloride level may fall; these changes with low serum K may produce the picture of hypochloremic, hypopotassemic metabolic alkalosis.

THE FUTURE

Recently encouraging responses have been obtained with other steroids, similar to cortisone chemically, and studies continue with the object of finding an effective but less expensive preparation. It is possible also that similar therapeutic responses might be obtained with some other hormone without induction of the undesirable metabolic responses which may occur with cortisone.

Studies of pituitary-adrenal cortex interaction and well directed use of ACTH and cortisone have already yielded tremendously valuable insight into certain disease processes and defense mechanisms. Future investigation of these problems should result in wider understanding of the etiology and proper treatment of many pathologic conditions.

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REPORTS X-RAY SUPERIOR THERAPY IN BREAST CANCER COMPLICATIONS

X-ray excels hormones in the treatment of patients with inoperable, advanced breast cancer which has spread to bony structures, according to a report to the American Medical Association.

The report, submitted to the association's Committee on Research of the Council on Pharmacy and Chemistry, is made public in the November 18 *Journal of the A. M. A.* It was prepared by a group of San Francisco physicians associated with the San Francisco Hospital, Stanford University Service—Drs. Leo H. Garland, Milton L. Baker, William H. Picard, Jr., and Merrell A. Sisson.

This group is one of about fifty throughout the United States and Canada carrying on a collaborative study of steroids and their effect on breast cancer under the sponsorship of the Committee on Research.

A high percentage of cases of advanced mammary cancer develop complications in the form of bone metastases. This constitutes perhaps the leading source of distress and disability from the disease. In a majority of cases, there is pain and in many there are fractures. The question which the cooperative study is trying to answer is whether these bone metastases should be treated primarily with x-rays, with steroid hormones or with a combination of both.

The San Francisco group reported on a study of seventy-nine patients treated with irradiation and of twenty patients to whom hormones were administered after it was proved that the breast cancer had spread and that the problem was largely one of relief of pain in the final stages of life. They also reviewed similar reports by other groups.

The report said that about 70 per cent of such patients are relieved of pain by roentgen therapy, the relief lasting for from 50 to 100 per cent of their survival time in some three fourths of the cases.

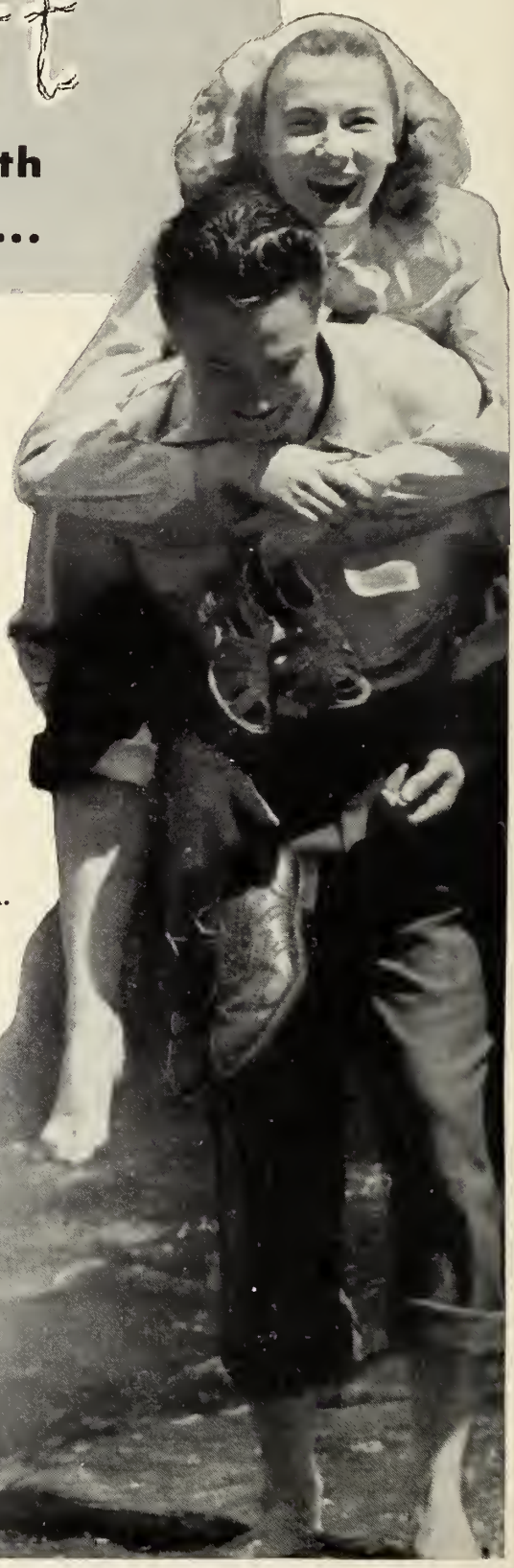
In steroid hormone therapy from 40 to 75 per cent of such patients are relieved, the relief being more pronounced in those receiving androgens than those receiving estrogens.

"This relief lasts for a variable number of months, the average being less in our experience than that obtained with irradiation," said the report.

The average survival of the patients receiving irradiation was twelve months in the San Francisco study, measured from the time the spread to bony structures was established. With hormones, the average survival was 8.8 months—8.1 months for patients receiving androgens and 9.7 months for a smaller group receiving estrogens.

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Clinical Conference

CANCER OF THE CERVIX UTERI

Tumor Teaching Conference No. 102,
October 5, 1950
St. Louis University School of Medicine

TEACHING POINTS

1. Cancer of the cervix and uterus is the third most common cancer.[1]
2. Any woman bleeding irregularly must be suspected of having the disease unless proven otherwise.
3. Such a woman should have: A. speculum and bimanual examination; B. biopsy of any suspicious lesion; C. Papanicolaou test (smear test).
4. A typical early cancer on the cervix appears as an ulcer which bleeds easily.
5. Lesions high in the cervix may not be visible to speculum examination.
6. Early diagnosis can be made only if pelvic examinations are performed on patients before symptoms have developed.

CASE 1. CARCINOMA OF THE CERVIX UTERI UNDER TREATMENT

Mrs. L. P., Firmin Desloge Hospital (50-5684), a 75 year old white female, was first seen at the Desloge Clinic on May 17, 1950. At that time she had a bloody vaginal discharge of one month's duration. She also had noticed a "falling down feeling" in the region of the vagina for the last two years. She had had no vaginal bleeding since her last menstrual period thirty years ago. Her obstetric history consisted of five full term pregnancies terminating in normal deliveries. Her past medical history included syphilis and typhoid fever. The significant physical findings were limited to the pelvis. The cervix uteri protruded through the introitus and was the site of an old laceration. An "erosion" surrounded the external os. The uterus was in 2 degree retroversion and there were no adnexal masses. On June 19, 1950, a dilatation and curettage and conization of the cervix were performed. Pathologic examination revealed epidermoid carcinoma of the cervix, Grade I. The lesion was treated with radium and deep x-ray therapy.

T. M. Mier, M.D.: This case exemplifies the fact that the diagnosis of carcinoma of the cervix frequently is complicated by the coexistence of benign cervical lesions. Erosions, lacerations and polyps of the cervix are seen so frequently that one may fail to scrutinize properly a small malignant ulcer lurking inconspicuously in the cervix. There is no difficulty in the diagnosis of far advanced lesions. The challenge lies in finding the early lesion.

What are the characteristics of early carcinoma of the cervix? There is no pathognomonic lesion. An entirely normal cervix may be the site of an early carcinoma. A carcinoma may also be confined within the endocervix and hence not be seen on speculum examination. An otherwise benign looking polyp may be the site of early malignant change.

In general, however, the lesion takes on three forms. In the ulcerating form, necrosis is the predominate characteristic. This results in a crater surrounded by a rolled margin that is stony hard. The base of the ulcer is dirty grey and bleeds even when touched with a whisp of cotton. A small wooden applicator sinks into its depth with the slightest pressure.

In the exophytic form a large cauliflower-like lesion may fill the entire vagina. These lesions are especially friable and pieces of tissue may be pulled off easily with the examining finger. Necrosis results in a foul discharge and bleeding may be profuse.

The third type is the nodular form in which a small stony hard nodule may be felt growing into the matrix of the cervix beneath the epithelium. Necrosis and ulceration eventually will occur.

Aided in part by Grant 619 (C) U.S.P.H.S., and the Missouri Division, American Cancer Society.

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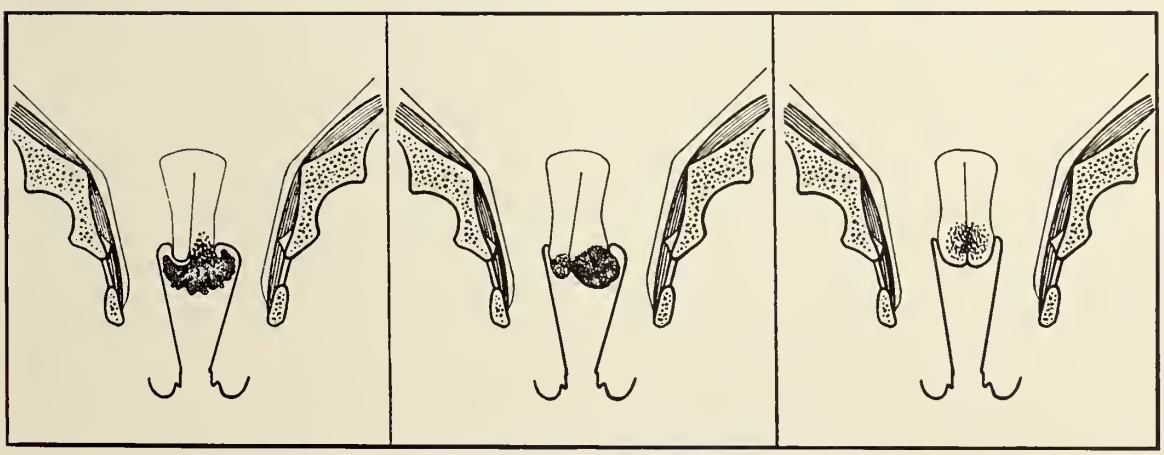


Fig. 1. Stage I. Cauliflower Type. Nodular Type. Worm eaten cervix.

before embarking on their malignant career. Certainly the disease may be irradiated easily at this early stage.

As outlined by the League of Nations, Stage I lesions include all cases in which the lesion is limited to the cervix. Stage II lesions include those in which the growth has extended above the cervix into the corpus uteri, or has extended into either or both parametrial areas but not to the pelvic wall,

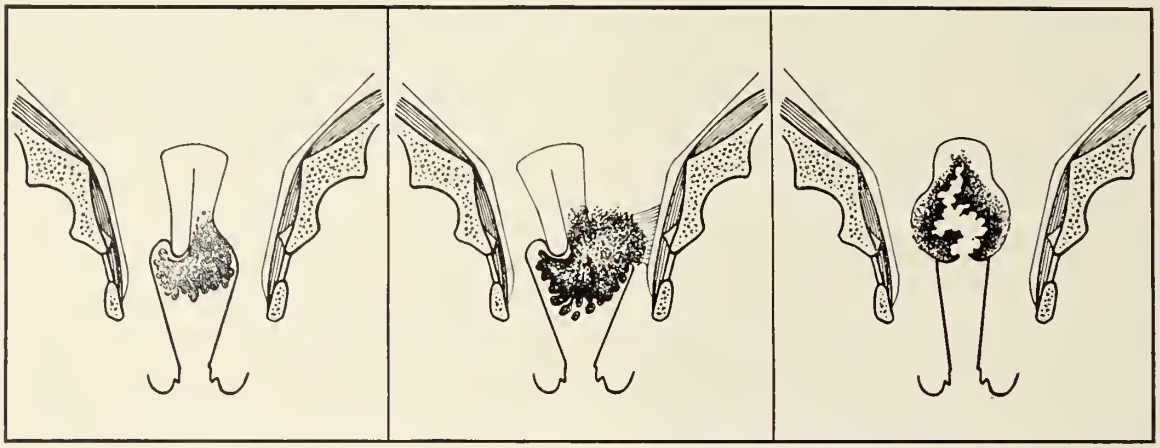


Fig. 2. Stage II. Cauliflower involving vagina. Involving parametrium. Involving corpus.

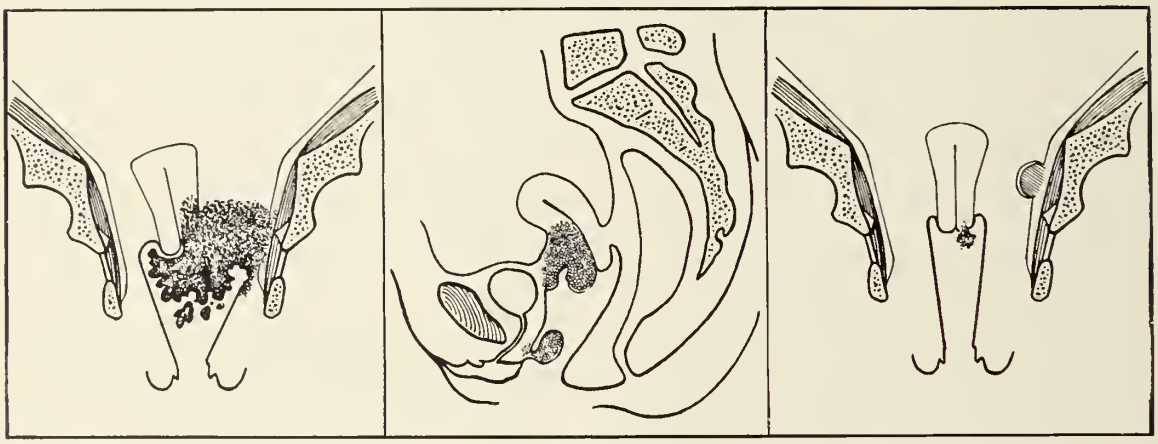


Fig. 3. Stage III. Complete involvement of parametrium. Involvement of lower one third of vagina. Isolated pelvis in exostosis.

or has invaded the vaginal fornices. Stage III lesions are those that invade one or both parametrial areas to the pelvic wall, or involve the lower third of the vagina. In Stage IV the growth has begun to invade neighboring organs; it may involve the bladder or rectum with or without fistula formation, or the growth may extend above or below the true pelvis.

Because of the difficulty in diagnosis of the early lesions many men have attempted to devise methods by which these early lesions could be demonstrated. Walter Schiller advanced the idea of painting the cervix with Lugol's solution. We had two patients in this morning on whom we are going to demonstrate this technic. Certainly the most reliable method of diagnosis is biopsy of all suspicious lesions. Any ulcer, no matter how small, that bleeds when touched with a wisp of cotton is a suspicious lesion.

When the cervix is painted with Lugol's solution, the normal portion stains a mahogany brown. However, all benign lesions as well as carcinoma fail to take the stain. One value of the stain is that it encourages closer scrutiny of the cervix. It also may be used as an antiseptic in the operating room preparatory to biopsy, where it calls attention to abnormal areas of cervix. More recently Papanicolaou was able to show that cancers exfoliate cells at a much greater rate than normal tissues.

These cells can be readily smeared on slides and stained. The smears are easily made but the difficulty lies in interpreting them.

I shall say a word on therapy. I think it is important that all cases be evaluated properly before institution of treatment. This is not only important in order to treat the patient properly but also to allow evaluation in years to come. Chest films and pylograms are important parts of the work-up.

Stage I lesions theoretically are confined to the cervix; however, in about 20 per cent the lymph

nodes are involved. The discussion always arises concerning Stage I lesions as to whether surgical

CASE 2. CARCINOMA OF THE CERVIX. FIVE YEAR SURVIVOR

Mrs. S. M. K., Firmin Desloge Hospital (48-9817), a 60 year old white female, was seen first on September 13, 1945. At that time she had a bloody vaginal discharge of six months' duration. She had had no pregnancies and her past history was negative except for syphilis.

The essential physical findings were limited to the pelvis. On bimanual examination the cervix was found to be extremely hard, rough and irregular in contour. The body of the uterus was not easily outlined. There were no adnexal masses and no induration in the fornices. A small amount of bleeding occurred on manipulation. Speculum examination revealed the cervical mucous membrane to be pale in appearance but no areas of ulceration could be seen. On September 17, 1945, a cervical biopsy revealed an epidermoid carcinoma of the cervix.

The stage of the malignancy when first seen was not stated in the record, but the description conforms to the League of Nations Stage I.

The patient was treated with deep x-ray therapy and radium element.

Five years later, on September 21, 1950, pelvic examination revealed the upper half of the vagina to be completely agglutinated so that the cervix could not be visualized. On the rectovaginal examination there was marked bilateral parametrial induration that extended to the pelvic wall. These findings indicate that residual carcinoma was still present.

DR. MIER: I would like to say a word in regard to the various stages of the disease. Walter Schiller first called attention to a lesion variously known as carcinoma *in situ* (intra-epithelial carcinoma or Bowen's disease of the cervix). These lesions have all the characteristics of malignancy with the exception of invasion. They may remain dormant in the cervix for a long period of time, even years, procedures or irradiation should be used. I think it is a matter of individual opinion and the type of patient; stage of the lesion and condition of the patient must be considered. About 10 per cent of the cases seen are still Stage I. At that rate, in this institution only one or two such early cases are seen a year. Unfortunately, the large majority of cases are represented by Stage III and Stage IV.

External radiation is given first in most cases since it decreases the size of the tumor and eliminates infection in the tumor itself. This increases the effectiveness and safety of the radium application.

How about the prognosis? There are from 60 to 80 per cent five year survivors in Stage I, 40 to 50 per cent in Stage II and 20 per cent in Stage III. It is practically impossible to control Stage IV lesions; however, the patient may survive for a fairly long period of time and be able to carry on house work.

E. L. KEYES, M.D.: Dr. Mier studied the five year survival rates for carcinoma of the cervix at Firmin Desloge Hospital from 1933 to 1945. He has found a 13.3 per cent five year survival rate, sixteen of 120 patients treated for Stage I-IV lesions having passed the five year mark, of whom two subsequently died.

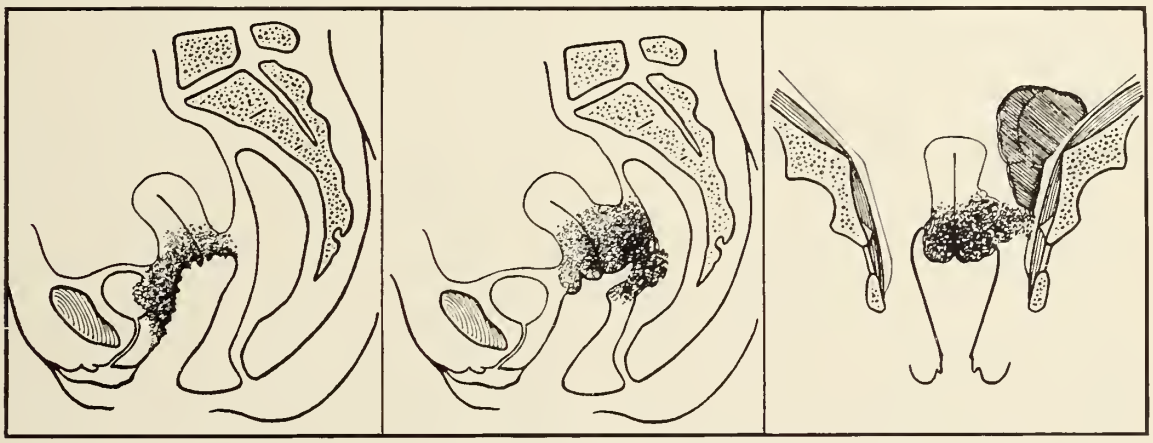


Fig. 4. Stage IV. Involving the bladder. Involving the rectum. Extension above the true pelvis.

Those patients treated by surgical means showed a higher five year survival rate only than those treated by irradiation either alone or combined with surgical intervention. Of twenty-one patients operated upon by radical hysterectomy of the Wertheim type, four survived five years or longer, all of them still alive and clinically free of recurrence, the five year survival rate being 19.0 per cent. Of ninety-nine patients treated by radiation, sixteen also having surgery, not necessarily of the Wertheim variety, twelve survived five years or longer, two of the twelve dying later; the five year survival rate was 12.1 per cent.

J. P. WYATT, M.D.: Carcinoma of the cervix is of the squamous cell variety in 95 per cent of patients and adenocarcinoma in 5 per cent of them. Cancer of the uterine cervix behaves much like

cancer in other locations. It spreads by direct extension and by the lymphatics. It is unusual for it to spread through the blood stream. I have not seen the so-called basal cell carcinoma which has been described in this location.

MYSTERIOUS VIRUS DISEASE IN MEDICAL SPOTLIGHT

An especially mysterious virus condition is beginning to take the spotlight in the medical profession's never-ending battle against disease. It is a condition known originally as glandular fever, more recently rechristened infectious mononucleosis, Dr. William Bolton of Chicago pointed out in the October issue of *Today's Health.*

Dr. Bolton, associate editor of the magazine, said there are "plenty of reasons why this disorder should command attention." The actual cause is believed to be a virus but is not exactly known; the way the disease spreads also is unknown.

"Its symptoms are so bizarre and confusing that accurate identification is extremely difficult," said Dr. Bolton. "No entirely satisfactory treatment has yet been developed."

The disease is not new. It has been known since 1889, causing among other disorders a swelling of lymph glands, especially in the neck. It originally was considered a disease chiefly of children, but, like polio, it has "graduated" to other ages.

"The principal signs in the average patient are moderate fever, sore throat, cough, headache and swollen glands," said Dr. Bolton. "You could have those in the start of German measles, in the complications of an ordinary cold (with which it is frequently confused), in a mild form of influenza and a host of other disorders

"Perhaps even more disturbing than the difficulty of diagnosis is the erratic manner in which infectious mononucleosis travels among the population. First, it is believed that many persons have it without identification ever being made. This would be possible with mild forms of infection, when the victim feels no worse than he would with a severe cold.

"Unsuspected, the virus could be passed on to a dozen friends. But to complete the confusion, not all of those friends would necessarily develop the disease. Some of them might have had it earlier, without knowing it. Others may have a natural resistance to its effects."

He pointed out its "spotty" nature—"it may develop as a small-scale epidemic in a group of children, yet attack only one child in a family of three or four." It may appear in one section of a town and leap abruptly to some far-removed area.

"There is no rhyme or reason to its wanderings, no common medium such as water or food supplies, unsuspected human carriers who harbor the virus without showing infection, or animal carriers," he said. "It is limited to no special region or season and does not occur as a result of any changes in individual activity or body function."

Two accurate methods of identifying the disease are available, he said. The first is to inspect the white blood cells under a microscope; the second, to determine whether the patient's blood serum causes a bunching of red cells taken from a sheep.

During the active course of the disease there is usually no extreme peril to life but the patient may feel worn out and unable to carry on sustained activity for weeks.

Penicillin, chloromycetin, aureomycin and human blood serum have been used in treatment and helpful results have been reported.

"Of course not everyone who feels weak and worn out after an illness can assume that he has had infectious mononucleosis," said Dr. Bolton. "But physicians are finding more and more frequently that infectious mononucleosis is the final picture after they have fitted together the pieces of this jigsaw-puzzle disease."

OUTLOOK OPTIMISTIC FOR PEPTIC ULCER SUFFERERS

Chances are good that a person suffering from peptic ulcer can live as long and as usefully as the average person if he follows a program laid down by a competent physician.

This encouraging note was sounded by Dr. Andrew C. Ivy and T. Arthur Turner in the November issue of *Today's Health,* published by the American Medical Association.

Cases requiring surgery and deaths caused by advanced process of the disease were found to be in the minority.

Indications from laboratory, clinic and social studies, however, are that "ulcer is much commoner in some occupations than others and is apparently related to irregular living habits, prolonged or chronic nervous tension, anxiety and fatigue," the authors reported.

"In animals ulcers have been caused by diets deficient in vitamins, by interference with the endocrine glands, by local allergic reactions, by injection of certain drugs, by mechanical injury and other means."

According to the article, many acute ulcers in human beings heal spontaneously after a short period of unexplained discomfort, but many, on the other hand, do not. Persons seeking the attention of a doctor are usually chronic sufferers.

"Regardless of the cause," the survey concludes, "both laboratory investigations and practical clinical experience have given the doctor information that makes it possible for him to treat a large majority of patients with success—provided they cooperate.

"Even if he does not know for sure that certain habits of eating and daily living caused the ulcer in the first place, he does know that they will aggravate it and delay healing."

INFANTS FARE WELL ON PLANE FLIGHTS

Mothers worrying about whether or not to take infants on plane trips can find comfort in the fact that scientific studies indicate that the average healthy baby reacts better to flight conditions than do adults.

Writing on "Information for Mothers" in the November issue of *Today's Health,* published by the American Medical Association, a medical consultant reports that "air sickness in infants in extremely uncommon."

In the case of the temporary disorder known as aerootitis media infants seem to fare much better than adults. The consultant explains it this way:

"In the infant the tube connecting the middle ear chamber and the throat is still short and straight. This tends to make its spontaneous opening and closing easier. In the adult the tube can be opened by chewing and swallowing movements, yawning or singing."

To forestall possible trouble with the infant, the parent is advised to waken the child and give him food or a bottle when the plane begins to descend.

AUREOMYCIN

HYDROCHLORIDE CRYSTALLINE

in Brucellosis



The chronic ill health and mortality associated with undulant fever, caused by one of the strains of brucellae organisms, has been a serious medico-social and economic problem in this country. The treatment of these infections in man can now be satisfactorily carried out with aureomycin.

AUREO-MYCIN

Aureomycin has also been found effective for the control of the following infections: acute amebiasis, bacterial and virus-like infections of the eye, bacteroides septicemia, boutonneuse fever, gonorrhea, Gram-positive infections (including those caused by streptococci, staphylococci, and pneumococci), Gram-negative infections (including those caused by the coli-aerogenes group), granuloma inguinale, *H. influenzae* infections, *Klebsiella pneumoniae* infections, lymphogranuloma venereum, primary atypical pneumonia, psittacosis, puerperal infections, Q fever, rickettsialpox, Rocky Mountain spotted fever, surgical infections, subacute bacterial endocarditis resistant to penicillin, tick-bite fever (African), trachoma, tularemia and typhus.

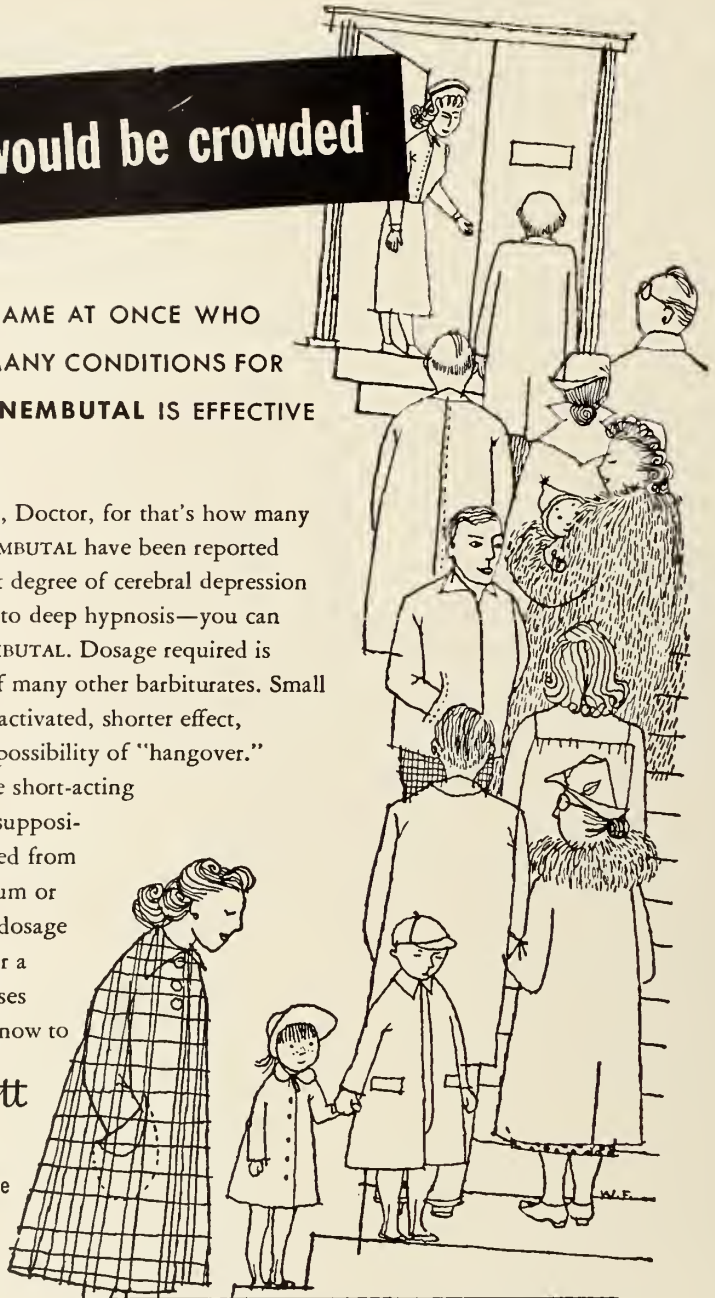
Capsules:
Bottles of 25 and 100, 50 mg. each capsule.
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Case Report

OPERATIVE RELIEF FOR PORTAL HYPERTENSION IN A 3 YEAR OLD CHILD

HARRY K. PURCELL, M.D.
ST. LOUIS
J. T. Y. SHEN, M.D.
ST. LOUIS
D. E. STAPLES, M.D.
ST. LOUIS

IN THE RELIEF of portal hypertension an anastomosis between the portal vein and the inferior vena cava or an anastomosis between the splenic vein and the left renal vein have been favored. Recently it was decided to use an anastomosis between the superior mesenteric vein and the inferior vena cava more frequently in selected cases. This was based upon recent anatomic studies (to be published) that we made which show that the superior mesenteric vein is of greater caliber than the splenic vein and that of the superior mesenteric vein is of sufficient length to be usable for this anastomosis.



Fig. 1. Patient R. A. before portacaval anastomosis showing costal margin (upper line) and splenic border (lower line).

The following case is reported for two reasons: (1) to demonstrate that the use of the superior mesenteric vein is practical and satisfactory, and (2) because of the age of this patient, it is believed that this report is unique.

CASE REPORT

R. A. (Record No. 50-1606), white male, 3 years old, was admitted to the pediatric division at St. Mary's Hospital on January 11, 1950, for operative relief of portal hypertension. The chief complaint was "bleeding from the mouth." The child was in good health until February 1949, eleven months before admission, when, without warning, he vomited large quantities of blood. At Bethesda General Hospital he was given emergency transfusions and received altogether 4,000 cubic centimeters of whole blood. The patient was discharged one month later with a diagnosis of Banti's disease. Following this, he had violent attacks of hematemesis with melena at monthly intervals requiring hospitalization and blood transfusions during each episode. The last hemorrhage occurred on December 22, 1949.



Fig. 2. Patient six months after portacaval anastomosis showing costal margin (upper line) and splenic border (lower line).

Past History.—Birth weight was 7½ pounds. Feedings were satisfactory with no food intolerance. He had diarrhea in infancy and pneumonia at the age of 1 year. There is no history of jaundice, clay color stools, itching or dark colored urine.

Family History.—The family history gave no significant information.

Physical Examination.—Examination revealed a white, 3 year old male child, apparently in good health. The significant findings were: a soft blowing systolic murmur over the base of the heart with no cardiac thrills. The heart rate and rhythm were normal. There was no cardiac enlargement. The abdomen was protuberant. The liver extended one finger breadth below the costal margin. The spleen was enlarged, firm and not tender. It extended more than five finger breadths below the left costal margin (fig. 1). There were no visible varicosities on the abdominal wall, no hemorrhoids and no hernias. There was no detectable fluid in the abdomen.

From the Department of Surgery, St. Louis University School of Medicine.

Laboratory Findings.—Urinalysis upon admission was normal. Leukocyte count was 5,200 and the Shilling count normal. Erythrocyte count was 4,020,000, hemoglobin 9.4 per cent, platelets 120,000, clotting time 30 seconds, bleeding time 1 minute. Prothrombin time was 100 per cent, plasma proteins 5.73 grams, albumin 3.25 grams, globulin 2.48 grams, alkaline phosphatase 4.5, cephalin flocculation 24 hours negative and 48 hours negative. Thymol turbidity was 12.5, bromsulfalein retention 30 minutes 34 per cent and 45 minutes 20 per cent. Blood sugar was 73 milligrams per cent. Nonprotein nitrogen was 32.

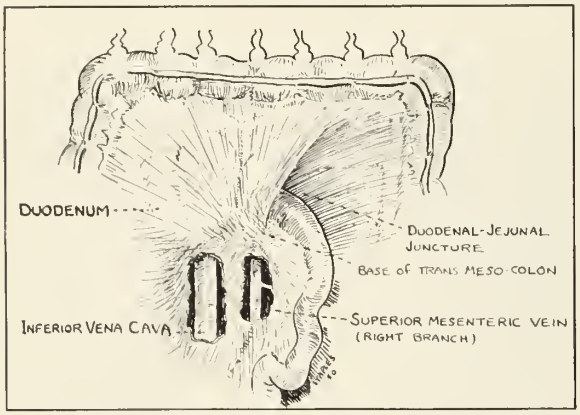


Fig. 3. Schematic drawing illustrating exposure of superior mesenteric vein and inferior vena cava.

Esophagoscopy revealed large varicosities on the posterior esophageal wall near the distal end of the esophagus.

Radiographic examination of the gastrointestinal tract failed to reveal significant findings.

Diagnosis.—The diagnosis of portal hypertension due to portal obstruction, probably extrahepatic, cause undetermined, was made.

The patient was given three small blood transfusions and on February 9, 1950, operation was performed. Under intratracheal ether anesthesia a right transverse abdominal incision was made extending from the midline halfway between the zyphoid process and the umbilicus to the tip of the ninth rib. The abdomen was entered and venous pressures were taken in radicals of the superior mesenteric and coronary veins. The pressure in both systems measured approximately 520 millimeters of saline. The incision was carried out along the ninth rib which was excised to the posterior axillary line. The diaphragm was divided and the liver was rotated into the right chest cavity. Because of the relatively large liver in a child of this age in comparison with the size of the chest cavity, the exposure obtained by this method was somewhat difficult. The portal vein was isolated and a cavernamatous transformation of the portal vein was found. It was decided that this was the site of the obstruction in the portal system. The transverse colon was brought out and the superior mesenteric vein was exposed immediately beneath the base of the transverse mesocolon (fig. 3). A right branch of the superior mesenteric vein was isolated and found to be of adequate caliber. The vena cava was isolated immediately posterior and inferior to the duodenum and a U shaped clamp was applied to the vena cava which occluded only the anterior aspect of this vessel. The branch of the superior mesenteric vein was ligated at its terminal branches and a small bull dog clamp was applied to the upper segment of this vessel. A small buttonhole was excised from the anterior aspect of the vena cava within the area occluded by the clamp. An end to side anastomosis between the proximal end of the vena cava was performed using continuous everting mattress sutures using 00000 Deknatel vaselinized silk (fig. 4). This suture was interrupted at two points to avoid a circular continuous suture. The clamps were removed and the anastomosis was found to function well. Before the abdomen and the chest were closed, venous pressure in the portal system was found to be reduced from more than 500 to 150 millimeters of saline and was still falling slowly.

The patient responded well after the operation and his postoperative course was satisfactory except for a spontaneous pneumothorax which occurred six days after operation but for which no treatment was required. He was discharged from the hospital in apparent good health on March 1, 1950.

The patient was readmitted on March 4, 1950, after the appearance of two tarry stools. At this admission the abdomen was found to be more protuberant than before and a fluid level was precussed in the abdomen. This lasted for a period of ten days, then completely

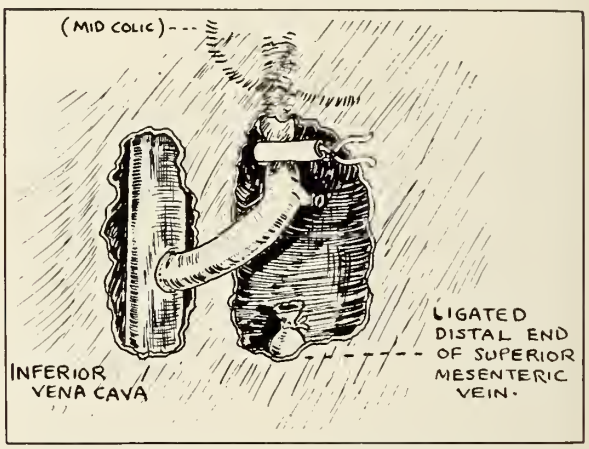


Fig. 4. Schematic drawing illustrating completed anastomosis between superior mesenteric vein and inferior vena cava just before clamp was removed from the superior mesenteric vein. The U shaped clamp has been removed from the vena cava.

disappeared. Since that time the patient has done well. There has been no recurrence of hematemesis. The patient looks and feels well. His liver function has continued within normal limits. The spleen has diminished in size and on October 1, 1950, was palpable one finger breadth below the costal margin. (fig. 2).

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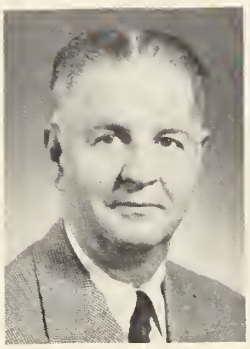
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PRESIDENT'S PAGE

Physicians have been watching with interest the outcome of the federal government anti-trust case against the Oregon State Medical Association, eight of its county societies, eight Oregon physicians and the Oregon Physicians' Service.



Federal District Judge Claude McCulloch of Oregon ruled on September 28 that the societies and the prepayment medical care plan, Oregon Physicians' Service, did not conspire to monopolize prepaid medicine in the State of Oregon. The Judge held that the formation of Oregon Physicians' Service by the profession was an "entirely legal and legitimate effort by the profession to meet the demands of the times for broadening medical and hospital service, eliminating the evils of privately owned concerns as well as the element of profit."

The Judge further stated that he would not expect any American court to hold that organized medicine must remain a sitting duck while socialism overwhelms it.

Further details about the case and highlights appear in this issue of The Journal.



Editorials

THE OREGON DECISION

Twenty-three medical organizations have been investigated recently by the F.B.I. Among those investigated are such organizations as the American Medical Association, Michigan Medical Service, Illinois State Medical Association, Oklahoma State Medical Association and the California Medical Association. One of the first to be investigated, in 1947, was the Oregon State Medical Association and the Oregon Physicians Service. The Oregon Physicians Service is the prepayment medical care plan sponsored by the Oregon State Medical Association.

The Attorney General of the United States announced an anti-trust suit had been filed against the Oregon State Medical Association, the Oregon Physicians Service, eight constituent county societies and eight Oregon physicians in October 1948. About one year after that date the trial got under way.

The federal government anti-trust division attempted to prove that the named defendants, beginning about 1936, conspired to restrain and monopolize prepaid medical care in the State of Oregon, (2) that they attempted to restrain and monopolize said care, and (3) that they did in fact restrain and monopolize said care.

Judge Claude McCulloch of the Oregon federal district court heard the case and on September 28, 1950, held that none of the government's charges had been proved. The Judge held in a fifty-one page opinion and findings of fact that Oregon Physicians Service is not a conspiracy but rather "an entirely legal and legitimate effort by the medical profession to meet the demands of the times for broadening medical and hospital service, eliminating the evils of privately owned concerns as well as the element of private profit."

Judge McCulloch's decision will be entered routinely in the form of a final judgment ordering dismissal of the case at a later date.

The government attorneys made frequent reference to the "economic aspects" of the doctors' activities. The Judge quoted the old adage on this point "The laborer is worthy of his hire." He questioned whether supervision of fees within a profession is unlawful and stated "Barbers do it, and bricklayers, beauty operators and milk men."

The Judge also questioned whether congress intended to include the professions when it enacted the Sherman anti-trust law in 1890. "In a measure, this case is an attack on the professions. Everything critical of the doctors that has been said in the case could be said of the legal profession."

Philip H. Marcus, special assistant to the U. S. Attorney General, conducted the suit for the government. He stated following the judge's decision that the Department of Justice "probably" will appeal the case directly to the U. S. Supreme Court.

Needless to say, the opinion filed by Judge McCulloch is a sweeping vindication of the efforts made by the medical profession in Oregon to furnish prepaid medical care to the public, and is a major setback to the efforts of the anti-trust division of the Department of Justice to restrict the further development and growth of physician-sponsored plans.

DECLINE IN MORTALITY

The reduction in mortality since the beginning of this century has benefited both sexes but the gains have been much more pronounced for women than for men, according to the Metropolitan Life Insurance Company. Among women, moreover, there has been a greater decrease in mortality among married women than among the unmarried.

For married women, 20 years of age and over, the death rate has been cut in half, from 16 per 1,000 in 1900 to 8 per 1,000 in 1948; for unmarried the rate dropped by two fifths. For men, the decline was less than one third among both the married and unmarried. For the first half of this period, the married men and women both experienced virtually the same relative decline in mortality, nearly one-fifth. In the second half, however, the downward trend for men was somewhat more gradual, whereas among the women it was accelerated.

Among both men and women every one of the age groups shared in the long-term reduction in mortality. The improvement was greatest in early adult life and decreased with advance in age. Especially large was the decline among young wives. Thus, at ages 20 to 24 their death rate dropped nearly 90 per cent between 1900 and 1948. The reduction was at least 70 per cent in the age range of 25 to 44 years, and amounted to more than 50 per cent in the group from 45 to 54 years. Even at ages of 65 and more, the decrease in mortality among married women was 30 per cent. Age for age, the women showed larger declines than men. The more favorable experience for women reflects the more pronounced drop in their death rates from tuberculosis, pneumonia and a number of other diseases. Of special importance, and particularly at the earlier reproductive ages, has been the reduced toll from maternity. The decline in mortality attributable to childbearing undoubtedly accounts, in good measure, for the greater improvement in the overall death rate among married women than among the unmarried.

In 1900, the married woman actually experienced the higher death rate at ages under 35; between 20 and 24 years, the excess then amounted to no less than 43 per cent. This excess was reduced gradually but it was not until after 1940 that married women showed the lower mortality.

Organization and Economics

NEWS NOTES

The first of a series of seven sectional meetings of the American College of Surgeons will be held in St. Louis on January 22 and 23, with headquarters at the Hotel Statler. Attendance will be largely from Arkansas, Illinois, Indiana, Iowa, Kansas, Louisiana, Minnesota, Mississippi, Missouri, North and South Dakota and Wisconsin although there is no geographical restriction.

John S. Knight, M.D., Kansas City, was recently installed as president of the Kansas City Society of O. O. R. L. Other officers are A. W. McAlester, III, M.D., president-elect; Winfred L. Post, M.D., Joplin, vice president; Barnard C. Trowbridge, M.D., Kansas City, secretary.

Robert D. Woolsey, M.D., St. Louis, will speak before the General Practitioners Study Club of Greater St. Louis on December 20 on "Low Back Pain."

Harold L. Gainey, M.D., Kansas City, was elected secretary-treasurer of the Central Association of Obstetricians and Gynecologists at a meeting on September 21 in Milwaukee.

Carroll P. Hungate, M.D., Kansas City, spoke before the Kansas City Advertising and Sales Executives Club on October 30 on "Medical Aspects of the Atom Bomb."

Evarts A. Graham, M.D., St. Louis, was elected to the board of regents of the American College of Surgeons at a meeting on October 26. Cyrus E. Burford, M.D., St. Louis, and J. Albert Key, M.D., St. Louis, were elected to the board of governors for a three year term.

The following 1950 initiates from Missouri were received by the American College of Surgeons at a meeting in October: Drs. Joseph N. Dills, C. E. Lockhart and Joseph G. Siceluff, Springfield; Robert H. Young, Moberly; William H. Duncan, Albert N. Lemoine, Albert N. Lemoine, Jr., Joseph H. Printz, Johnson Underwood, Jr., and Vincent T. Williams, Kansas City; Eugene T. Dmytryk, Minot P. Fryer, Carl J. Heifetz, Jules H. Kopp, Joseph H. Ogyra, Francis X. Paletta, Henry J. Ringo, Bernard L. Sinner, Hugh R. Smith and Stephen M. Tapper, St. Louis.

MUSINGS OF THE FIELD SECRETARY

By any chance have you had to pay a hospital bill recently without the assistance of some type of hospitalization insurance? If you have, you were probably sold automatically on the value of such insurance at the moment you looked at your bill. It is quite unfortunate that many struggle through an experience of this type before they realize the value of voluntary prepaid health insurance.

It would seem that doctors are in a strategic position from the standpoint of aiding measurably in efforts to influence more people to protect themselves against those unpredictable "financial squeezes" that may come through sickness. This might, also, come under the heading of "looking out for the patient's welfare."

NEW MEMBERS

Bassett, John W., St. Louis, Mo., St. Louis M. S.
Byrne, John E., St. Louis, Mo., St. Louis M. S.
Campbell, Mark, Olympia, Washington, St. Charles County.
Chapman, Samuel B., Kansas City, Mo., Jackson County.
Fletes, James W., Normandy, Mo., St. Louis County.
Fries, John Wm., St. Louis, Mo., St. Louis M. S.
Heinemann, Sol, St. Louis, Mo., St. Louis M. S.
Israel, Milton R., St. Louis, Mo., St. Louis M. S.
Lawton, John T., St. Louis, Mo., St. Louis M. S.
Legner, Stanley G., Perryville, Mo., Perry County.
Lutkewitte, Joseph F., St. Marys, Mo., Perry County.
McAfee, C. Alan, St. Louis, Mo., St. Louis M. S.
Nawrocki, Joseph F. J., St. Louis, Mo., St. Louis M. S.
Rees, Wm. J., Kansas City, Mo., Jackson County.
Roulhac, George E., St. Louis, Mo., St. Louis M.S.
Sato, George, St. Louis, Mo., St. Louis M. S.
Shaw, William J., Jr., Fayette, Mo., Howard County.
Spaulding, Robert W., St. Louis, Mo., St. Louis M. S.

DEATHS

Laws, Clarence J., M.D., Princeton, a graduate of the University Medical College of Kansas City, 1913; Fellow of the American Medical Association; member of the Mercer County Medical Society; aged 63; died August 30.

Wills, William J., M.D., Springfield, a graduate of Beaumont Hospital Medical College, St. Louis, 1901; Associate Fellow of the American Medical Association; honor member of the Greene County Medical Society; aged 75; died September 24.

Davis, Albert W., M.D., Kansas City, a graduate of the Kansas City Medical College, 1902; Fellow of the American Medical Association; honor member of the Jackson County Medical Society; aged 87; died October 4.

Goodrich, Charles F., M.D., Washington, a graduate of Washington University School of Medicine, 1898; honor member of the Franklin County Medical Society; aged 76; died October 10.

Freeman, Samuel F., M.D., Springfield, a graduate of the National University of Arts and Sciences, St. Louis, 1909; Fellow of the American Medical Association; aged 67; died November 2.


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1. Bauer, G.: Angiology 1: 161-169 (Apr.) 1950.
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THE COUNCIL

The Council met at the Sheraton Hotel, St. Louis, on November 11 and 12, 1950, with J. W. Thompson, M.D., St. Louis, Chairman.

Those present were Drs. Thompson, Donald M. Dowell, Chillicothe; W. F. Francka, Hannibal; Otto W. Koch, Clayton; J. F. Jolley, Mexico; R. W. Kennedy, Marshall; E. C. Bohrer, West Plains; Frank W. Hall, Cape Girardeau; W. A. Bloom, Fayette; C. Edgar Virden, Kansas City; H. E. Petersen, St. Joseph; C. E. Hyndman, St. Louis; R. E. Schlueter, St. Louis; R. O. Muether, St. Louis; Robert Mueller, St. Louis; Mr. D. E. Caywood, Springfield; Mr. John Guy Miller, Mr. T. R. O'Brien, Mr. Ray McIntyre and Mr. Lemoine Skinner, St. Louis. In addition on Sunday, the following attended: Drs. W. L. Allee, Eldon; Howard B. Goodrich, Hannibal; Victor E. Scherman, St. Louis; Buford G. Hamilton, Jefferson City; S. Souter Smith, Springfield; Curtis H. Lohr, St. Louis.

Testing Vision of School Children

A letter from C. Souter Smith, M.D., Springfield, Chairman of the Committee on Conservation of Eyesight, was read outlining a program of the Committee for the testing of eyesight of school children in Missouri with the cooperation of the Department of Education. The Committee asked for an appropriation for the work. The letter stated that a member of the Committee would be available to answer questions and Robert D. Mattis, M.D., St. Louis, spoke briefly and answered questions on the work. The request was held for referral to the Budget Committee, which approved the appropriation.

Resolution From Druggist's Association

A letter enclosing a resolution from the St. Louis Drug Association was read which asked the cooperation of the Association in the matter of physicians employing druggists and interfering with the free practice of pharmacy. This was discussed by Drs. Thompson, Kennedy, Petersen, Virden, Bohrer and Mr. McIntyre, which brought out some criticism of physicians and druggists. It was decided that since the St. Louis Medical Society has a committee that is studying this and the principle problem being in St. Louis, that the Association should take no action on in.

Mid-Century White House Conference

An announcement of the Mid-Century White House Conference on Children and Youth was read in which the Association was asked to send representatives. A similar conference has been held at the end of every decade, called by the President or his representative, this one being called by Mr. Oscar Ewing, F.S.A. Administrator. Mr. McIntyre gave some data on the meeting which he had received from Dr. Garner of the Division of Health pointing out that there are certain definite delegates from the state, among whom are Dr. Garner, Dr. Margaret Gildea, Dr. Joseph Jaudon and Dr. Maddux of the Division of Health. After discussion and on motion of Dr. Virden, it was voted that the Association have a representative attend the Conference and report back to the Council, also asking Drs. Gildea and Garner to report on the meeting.

National Institute of Professional Services

Material from the National Institute of Professional Services was presented and it was pointed out that some of the personnel which had been connected with the National Physicians Committee was promoting the work, that the material furnished was good and that physicians must use their own discretion as to what of such organizations they wished to support.

A. M. A. Coordinating Committee

Mr. O'Brien read an announcement of the third annual conference of the coordinating committee of the A. M. A. National Educational Campaign which will be held on December 7. Upon motion of Dr. Virden, Drs. Bloom and Fries were designated to attend this. Dr. Virden was asked to furnish the name of a Kansas City physician who would also be appointed to attend the conference.

Budget Committee

The Chairman appointed the following Budget Committee: Drs. Hyndman, chairman; Bloom, Virden, Petersen and Jolley.

Report of Field Secretary

Mr. McIntyre reported on work conducted since the last Council Meeting which included Councilor District meetings of the First, Second, Fifth, Eighth, Ninth and Tenth Districts and announced a meeting of the Sixth District for November 30 and of the Fourth District for December 7. He told of medical forums that are being held in the state including Kansas City, Springfield, St. Joseph and Cape Girardeau and announced that one would be held in St. Louis on November 27. He also reported on the number of speakers that have been furnished for county society meetings. He told of the meetings that have been held throughout the state by the Missouri Academy of General Practice. He reported on the Missouri Health Council and a meeting in Detroit at which "M. D. Participation" was discussed. The lack of cooperation of physicians in the work of the fifty-five local health councils and the Missouri Health Council was discussed. Mr. McIntyre was asked to get the personnel of each council and in those cases in which no physician was active, a letter to the county society over the signature of Dr. Bloom should ask that a physician be appointed to interest himself in the local council.

A. P. H. A. Survey

Mr. McIntyre said that Dr. Hamilton had asked that a committee be appointed to cooperate in a survey to be made by the American Public Health Association of the Missouri Division of Health. On motion of Dr. Virden, it was decided that Dr. Royce Bohrer, Jefferson City, be asked to serve from the Association on a committee of the Missouri Health Council to be in close contact with the survey and report to the Council.

Treasurer's Report

Dr. Hyndman reported briefly stating that fuller information would be presented on Sunday by the Budget Committee.

Public Relations

Dr. Fries reported on the work of the Committee on Public Relations and the expenditures and recommended that this committee be made a committee of the Council. This was discussed by Mr. Skinner, Drs. Bloom, Petersen Dowell, Virden, Francka and Thompson. It was decided that the committee should remain a separate committee but that the chairman should attend all Council sessions.

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BATTLE CREEK, MICHIGAN

Joint Committee for Improvement of Care of the Patient

The work of the joint committee of physicians, hospitals and nurses, which is made up of three representatives from each field was reviewed. Meetings have been held on July 7 and October 24. Items for discussion at the next meeting in January will be the Hess report and the standardization of hospitals and setting up of units on general practice in various hospitals. The situation of the American College of Surgeons considering giving up the approving of hospitals and then going ahead with this work was discussed. Various difficulties dealing with anesthesia, x-ray and pathology in hospitals were discussed. It was pointed out that only one person, Dr. Paul Johnstone of Kansas City, had been appointed on this committee and on motion of Dr. Bloom, the Chairman was asked to appoint two more members. The presidents, executive secretaries and editors of each group will be ex officio members of the overall committee.

Washington A. M. A. Office Meeting in Omaha

A meeting of representatives of seven or eight states called by the Washington Office of the A. M. A. in Omaha on November 15 was announced.

Legislation

Mr. O'Brien gave a brief review of the legislative situation in Missouri and stated that a list of all national and state members of legislatures would be sent each member of the Association.

World Medical Association

Dr. Goodrich reported on the recent meeting of the World Health Association meeting which he had attended. He said that the two main purposes of the Association were correlation of scientific teaching and work of the various countries and the creation of personal understanding between doctors of the forty-one countries in the Association.

Voluntary Advisory Committee to Selective Service

Dr. Mueller spoke briefly on the work of the Advisory Committee to Selective Service System and answered questions. He asked that committees be set up immediately in all Councilor Districts and that he be given the personnel so that he could give it to the Selective Service System. He stated that the Selective Service System wished to work with these advisory committees. He said that the National committee was starting a study of residents in hospitals in order to make specific recommendations. He said that deferments should be based on civilian need, teaching and industrial. Dr. Dowell asked that the Councilor District committees be notified by the state office of their appointment.

Report of Budget Committee

The Budget Committee reported that the income of the Association was not adequate to cover the expenditures and that some means of overcoming this was necessary: cutting into the reserves of the Association, raising the dues or placing a temporary assessment. It was pointed out that this was necessary especially in view of the curtailment of income from dues in view of the war situation, that fewer new members would be available and that the dues of many members may be waived because of military service. The Committee recommended that the council recommend to the House of Delegates that a $10.00 assessment be placed on members for the year 1951. On motion of Dr. Francka, this was passed.

Dr. Virden moved that the dues of men going into service be waived but that provision be made by amendment of the by-laws to care for this situation permanently. This was passed.

The following budget for the year 1951 was adopted by the Council for submission to the House of Delegates:

Salaries	$29,000.00
Journal Expense	20,000.00
Postage & Express	500.00
Printing and Stationery	1,800.00
Travel, Executive Secretary	900.00
Travel, Field Secretary	1,500.00
Telephone and Telegraph	1,200.00
Office Rent and Light	3,000.00
Meeting and Com. Expense	12,400.00
Defense	500.00
Scientific and Postgraduate	1,000.00
Woman's Auxiliary	500.00
Public Relations	4,500.00
Insurance Annuity	950.00
Miscellaneous and General Expense	1,500.00
Furniture and Fixtures	250.00
Social Security Tax	425.00
Total	$79,925.00

Report of Delegates to A.M.A.

Drs. Allee and Goodrich reported briefly on the San Francisco session of the A. M. A. Drs. Thompson and Lohr reported on meeting with the reference committee concerning the approving of hospitals for intern training. The allocation of interns and residents to hospitals, especially in connection with Procurement and Assignment activities, was discussed. It was suggested that the delegates be asked to prepare and present a resolution to the House of Delegates toward this end. After discussion in which it was pointed out that work is being done along this line, upon motion of Dr. Virden it was decided that such a resolution should be given the delegates for use at their discretion.

Civilian Defense

Civilian Defense was discussed by Dr. Hamilton, Dr. Lohr and Mr. O'Brien. Outlines prepared by Dr. Hungate and Dr. Hamilton on proposed plans for the state were presented. Dr. Lohr presented the plan that is being worked out in St. Louis County. Dr. Lohr was asked to make the outline available to the Council and the Civilian Defense Committee.

J. W. THOMPSON, M.D., Chairman

SOCIETY PROCEEDINGS

FIRST COUNCILOR DISTRICT

DONALD M. DOWELL, CHILLICOTHE, COUNCILOR

Clay County Medical Society

The third Annual Clay County Medical Society Clinical Conference was held November 2 at the Elms Hotel, Excelsior Springs. The conference began with a noon luncheon and a discussion by Milton B. Casebolt, M.D., Kansas City, on "The Care of the Aged."

George V. Herrman, M.D., Kansas City, spoke on the afternoon program on "The Rh Factor, Erythroblastosis and the Exchange Transfusion."

W. A. Sodeman, M.D., New Orleans, Louisiana; Charles Stroebel, M.D., Rochester, Minn., and Fredrick H. Falls, M.D., Chicago, all appeared on the afternoon program. Drs. Sodeman and Falls presented the evening program.

S. R. MCCRACKEN, M.D., Secretary.

A urinary tract infection

resistant to *"...all available antibiotics and chemotherapeutic agents..."*[1]

TREATED WITH TERRAMYCIN

M. F., male, age 48

P. H.: Pyelonephritis of 1½ years' duration following ureterocutaneous implants (mixed infection); previous therapy with all available antibiotics and chemotherapeutic agents without response.

Lab. data: Urinary cultures positive for P. vulgaris, E. coli, Staph. albus and enterococci.

Therapy: Terramycin 2 Gm. daily for five days; orally in divided doses q. 6 h.

Result: Urine cultures negative except for P. vulgaris by 2nd day of treatment. Response described as "good".

Case report abstracted from: King, E. Q. et al.: J.A.M.A. *143*:1 (May 6) 1950.

CRYSTALLINE

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suggested for:

acute pneumococcal infections, including lobar pneumonia, bacteremia; acute streptococcal infections, including erysipelas, septic sore throat, tonsillitis; acute staphylococcal infections; bacillary infections, including anthrax; urinary tract infections due to E. coli, A. aerogenes, Staphylococcus albus or aureus, and other Terramycin-sensitive organisms; acute brucellosis (abortus, melitensis, suis); hemophilus infections; acute gonococcal infections; lymphogranuloma venereum; granuloma inguinale; primary atypical pneumonia; typhus (murine, epidemic, scrub); rickettsialpox.

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100 mg. capsules, *bottles of 25 and 100;*
50 mg. capsules, *bottles of 25 and 100.*

1. King, E. Q.; Lewis, C. N.; Welch, H.; Clark, E. A., Jr.; Johnson, J. B.; Lyons, J. B.; Scott, R. B., and Cornely, P. B.: J.A.M.A. *143*:1 (May 6) 1950.
2. Herrell, W. E.; Heilman, F. R.; Wellman, W. E., and Bartholomew, L. A.: Proc. Staff Meet. Mayo Clin. *25*:183 (Apr. 12) 1950.

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St. Joseph Clinical Society

Sixty physicians from northwestern Missouri and northeastern Kansas attended the St. Joseph Clinical Society sessions in the afternoon and evening of October 19 at the Robidoux Hotel, St. Joseph. The meeting was under the direction of H. W. Carle, M.D., President.

Missouri physicians appearing on the program were: Thompson E. Potter, M.D., St. Joseph, who spoke on "The Use of Aqueous Alpha Tocopherol and Calcium Gluconate in Postoperative Anticoagulant Therapy" with presentation of a case; William B. O'Connor, M.D., St. Joseph, "Newer Drugs in Dermatology"; Paul O. Hagemann, M.D., St. Louis, "Newer Concepts in Arthritis," and J. W. Thompson, M.D., St. Louis, "Diverticulosis of the Colon; Problems in Its Management."

Donald M. Dowell, M.D., Councilor.

SECOND COUNCILOR DISTRICT
W. F. FRANCKA, HANNIBAL, COUNCILOR

At the Mark Twain Hotel in Hannibal on October 19, thirty physicians gathered for a meeting of the Second Councilor District. The afternoon scientific session was presented by the Cardiovascular Section of the St. Louis University School of Medicine as follows:

"Acute Rheumatic Fever," Robert Potashnick, M.D., St. Louis.

"Rheumatic Heart Disease," John J. Hammond, M.D., St. Louis.

"Treatment of Rheumatic Fever and Rheumatic Heart Disease," John J. Inkley, M.D., St. Louis.

The evening festivities began with an enjoyable social hour, followed by a dinner and the program. W. A. Bloom, M.D., Fayette, President of the Association, spoke on "Medicine in Action." Mr. T. R. O'Brien, Executive Secretary, discussed briefly a number of pertinent Association matters.

G. E. Thoma, M.D., St. Louis, of the Department of Internal Medicine, St. Louis University School of Medicine, spoke on "Atomic Warfare and the General Practitioner."

W. F. Francka, M.D., Councilor.

EIGHTH COUNCILOR DISTRICT
W. S. SEWELL, SPRINGFIELD, COUNCILOR

Seventy physicians attended the meeting of the Eighth Councilor District at the State Tuberculosis Sanatorium, Mount Vernon, on the afternoon of November 9.

St. Louis University School of Medicine, through its Cardiovascular Section, presented the afternoon scientific program as follows:

"Acute Rheumatic Fever," Robert Potashnick, M.D.

"Rheumatic Heart Disease," John J. Hammond, M.D.

"Treatment of Rheumatic Fever and Rheumatic Heart Disease," John J. Inkley, M.D.

A pleasant social hour was held at the home of Dr. B. H. Brasher, superintendent of the Sanatorium. Those in attendance enjoyed a fine complimentary dinner at the Sanatorium preceding the evening program.

Jack Schiffmacher, M.D., Kansas City, member of the Association Committee on Emergency Civilian Medical Defense, spoke on "Atomic Warfare and the General Practitioner." Mr. T. R. O'Brien, Executive Secretary, discussed a number of important Association matters including the present status of military recruitment of physicians. W. A. Bloom, M. D., Fayette, President, sent his regrets for his inability to be in attendance and to participate in the program.

W. S. Sewell, M.D., Councilor.

TENTH COUNCILOR DISTRICT
FRANK W. HALL, CAPE GIRARDEAU, COUNCILOR

Mineral Area County Medical Society

The regular monthly meeting of the Mineral Area County Medical Society was held at State Hospital No. 4, Farmington, at 8:00 p.m. on October 26.

Paul O. Hagemann, M.D., St. Louis, gave an interesting discussion on "The Use of ACTH and Cortisone in Certain Types of Arthritis and Other Allergy Diseases."

Mr. Parke M. Banta, candidate for Congressman from the area, was present and gave a short talk on his political views.

The application for membership of Dr. H. S. Knotts, Farmington, which had been presented to the Society at the previous monthly meeting, was voted upon and Dr. Knotts accepted as a member.

Dr. C. R. Markivee, Fredericktown, presented his application for membership and it was read and referred to the committee on membership.

The following members were present: Drs. Emmett F. Hoctor, G. L. Watkins, Sr., and F. R. Crouch, Farmington; John W. Hunt, Jr., Leadwood; Ben M. Bull, Ironton; Marvin Grossman, W. Harry Barron and S. C. Slaughter, Fredericktown; H. H. Cline, Piedmont; M. T. Haw, Jr., Bonne Terre; Dailey Appleberry, Rivermines; C. H. Appleberry, Byron Taylor and P. L. Jones, Flat River.

Paul L. Jones, M.D., Secretary.

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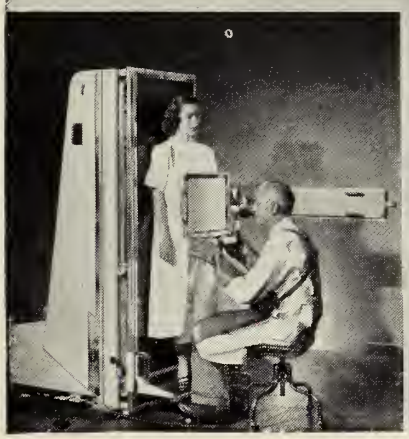
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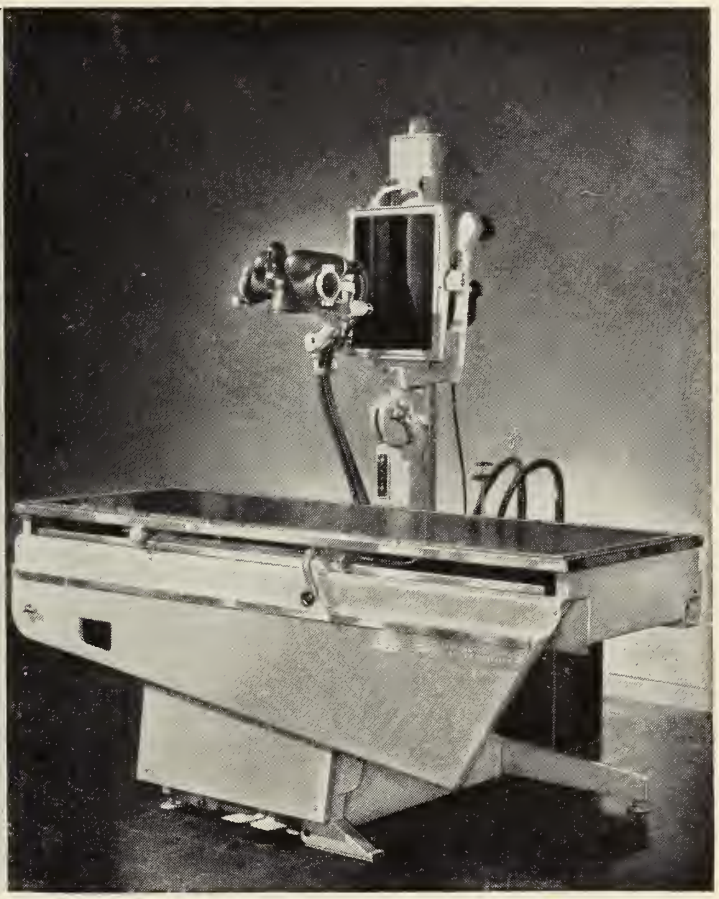
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From where I sit, it's good to know people, like that young fellow, who refuse to be treated any different than anyone else. City people and farmers —those of us who prefer cider and those who'd rather have a cool glass of temperate beer—we're all entitled to the same privileges. That is, so long as what we do doesn't conflict with the law of the land.

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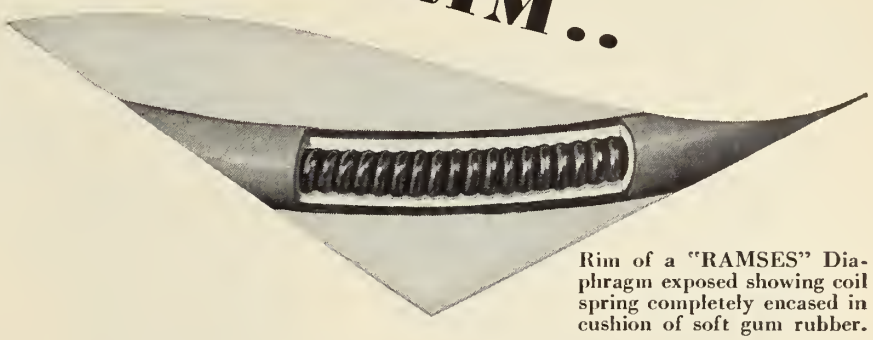
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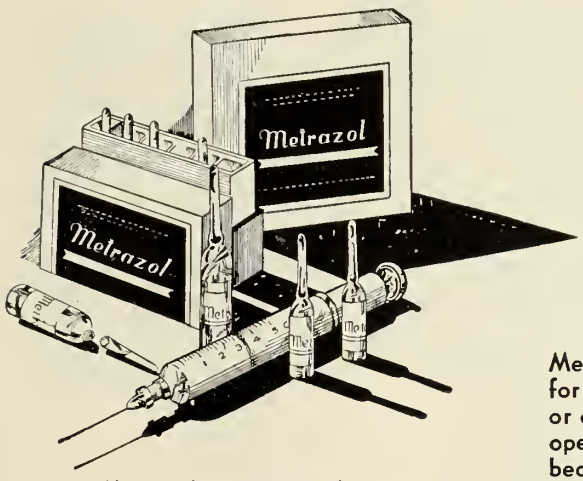


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Entered as second-class matter, February 18, 1925, at the Post Office at Fulton, Missouri, under the Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Section 1003, Act of October 3, 1917, authorized July 30, 1918. Printed by The Ovid Bell Press, Inc., Fulton, Missouri.

Address all communications to The Journal of the Missouri State Medical Association, 623 Missouri Theater Building, 634 North Grand Avenue, St. Louis 3. Telephone: Newstead 0404-0405.

Subscription: $3.00 per year; 40 cents per copy.

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